



Expecting Satisfaction and Wholeness:
A Patient Perspective of Science
Communication in a Maternity Health Context

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Abstract

Previous evidence suggests that the healthcare industry in Canada, and specifically Saskatchewan, is currently moving to provide patients more autonomy and control over their care. This move requires successful patient understanding and communication—and in particular science understanding and communication—to achieve interactions between healthcare practitioners (HCPs) and patients characterized by respect and balance of power. Conceptualizing care as a service experience enables the application of a marketing lens to this context to better understand science communication, and service experiences from the current patient perspective. I conducted twelve semi-structured interviews to explore how patients experience and navigate the scientific aspects of their decision-making conversations with their HCPs. Grounded theory methods were then used to analyse and interpret the interview data to create a new theoretical framework. This framework describes decision-making in a maternity care context, with particular attention to the role of science communication as part of the patient experience. The framework begins with three overarching categories: (a) the Antecedents to the Science Experience, (b) the Science Experience and (c) the Outcomes of the Science Experience. The antecedents to the science experience include individual and relationship factors that impact the saliency of science. The science experience describes the three areas of care that patients encounter science (decision-making, success metrics, and policies and procedures). The outcomes of the science experience are the accumulated result of the (a) antecedents and the (b) experience. This research found that the outcomes of patient-centred care, wholeness, and satisfaction are impacted by a patient's ability to navigate science as it is encountered throughout their maternity care experience. This research implies that satisfactory maternity care experiences rely on successful and meaningful science communication in which wholeness is more broadly practiced. Future research could explore the components of the new framework in-depth, and in a broader health context.

Keywords: patients, healthcare providers, science communication, satisfaction, wholeness, patient-centred care.

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Chapter 1: Introduction

1.1 Research Context

My participants experienced a variety of pregnancy and birth stories. These experiences form the basis for all of my findings and analysis to be discussed in the section to follow. Presented for context, are the stories of *Frances* and *Elsie* who had distinctly different experiences:

I hated being pregnant. I thought it was going to be this goddess experience blah, blah, blah, organic, granola, nature, my body's meant to do this—it sucked. It felt like there's an alien inside me, like, I don't know. I thought I was going to be able to like feel this baby—I don't—it was just weird. I did not like it. And then, I don't know. I felt that my birth was traumatic. I didn't have a birth plan. I was just like, I want to have a baby safely so if that means interventions let's do it. Let's have all the drugs. And if...I don't know, like the next time—I have an appointment with my obstetrician next week to discuss having a c-section for the next baby. Like I would just like to go in, have it done, taken out and that's it. And post-partum care was fine. We had difficulty with breastfeeding and our family doctor was concerned about his weight drop. So, we had lots of lactation consultants. And I don't know, nursing was a whole different bunch of bullshit so. [...] And then whenever someone tells me 'I just had a baby,' I just want to cry for them. I'm just like, 'I'm so sorry like, my condolences.' (Frances)

Contrastingly...

So my family doctor, I've had her for like twelve years? Um, so I know her really well and she's—she's great in like lots of ways. She's just um, I feel like you do—like you have questions or want to talk about things, like she does make the time for you, right? Like she's not rushing you in and out, and like talk to you as a person. Which is really important to me anyways. [...] Um, doctor [X] was also great, and again, I only had met her the one time, and then saw her in the hospital later, but um, she was pretty easy to like I don't know, she built—build rapport quite quickly right? [...] like, and again, like that would have been week thirty-eight but sort of talked about the delivery and what I wanted. Um, and then at a certain point would she sort of like intervene on, right? Like, some [inaudible] what would make a c-section necessary and things like that. [...] Um, yeah and I felt like, like when I presented what my ideal sort of plan would be, she was very open to it and um, yeah so that wasn't hard to—to sort of communicate with her sort of what I wanted. She wasn't—didn't seem like she was pushy at all. Um, then again, like at the hospital, so she was there. Um, but the nurses were really good too, like I feel like again, I was sort of—like my husband and I knew what our plan was so we were hoping to have like a natural birth. Like no epidural, again, like open to it depending on how I was feeling, but um, so by the time I had gotten there, I was already like seven centimeters dilated so there wasn't even a ton of time right? For an epidural. Like they could have still given me one, but—but the nurses again, they just sort of asked if I wanted one, I said 'no.' They said, 'okay sounds good.' And yeah, we just sort of went from there. [...] Yeah, I don't know. I feel like my story is, um, like yeah. Sort of the ideal scenario of having this go. (Elsie)

The diversity of birth experiences is astounding. My research captures a wide range of stories and experiences. Research into these experiences can lead to improvements in the

physical, mental and emotional well-being of women, babies, and their families as a result of highlighting their stories. Ensuring that women are offered real choices during pregnancy and childbirth and that they have the information to make those choices with confidence and ease is important to the medical and scientific communities and the community of mothers. This research will focus on consumer decision-making and consumer well-being related to the interests of consumers in the marketplace. In this research specifically, I will be delving into the interests of patients in the healthcare system. I ask: *how do patients experience and navigate the scientific aspects of their conversations with their healthcare practitioners?*

For most women and their families, pregnancy and childbirth are a time of great excitement and anticipation; however, it can also be a time of uncertainty and anxiety. It is a time of transition for many women emotionally and mentally. Garbes (2018) suggests that this can create a sense that pregnancy happens *to* a person, instead of an experience they are living. The social opinion of pregnancy, meaning the stories, values, and expectations affixed to the condition, appears to be disassociated from the human individuals who experience pregnancy (Garbes, 2018). The culture around science and pregnancy at times seems paradoxical. Western discourse surrounding maternity care simultaneously calls for more and less science to be involved in pregnancy and birth (Parry, 2008). Historically, pregnancy and childbirth caregiving are arenas dominated by women. The introduction of modern science and medicine has resulted in reduced infant and maternal mortality rates. However, the introduction of science and medicine seems to have removed the personal element of a relationship between a person giving birth and her care provider. Medical practice has also encouraged a system of hierarchy and increased power dynamics due to streamlining public and private practices to improve efficiency and cost savings, which could lead to a depersonalization effect.

According to the Canadian Institute for Health Information, there were 367,062 babies born in Canadian hospitals in 2017. For the past forty years, the total fertility rate—which indicates the number of children a cohort of women would have during their reproductive years—has been below replacement levels. The most recent reports by Statistics Canada indicated that in 2011, Canadian women had an average of 1.61 children (StatsCan, 2016). Pregnancy and childbirth are significant life events reported to be vivid and life-altering (Johanson, Newburn, & Macfarlane, 2002). My research will explore this important life-event that Canadian women are experiencing 1.61 times in their lives and how critical positive outcomes like consumer satisfaction would be.

The Public Health Agency of Canada (PHAC) reports that most Canadian women evaluate their experience with labour and childbirth as positive (PHAC, 2018). Women also reported high levels of satisfaction with the care they received from their healthcare practitioners (HCPs). About three-quarters of women were “very satisfied” with the respect shown to them, the perceived competence of the HCP, the concern shown for their privacy and dignity and their involvement in decision making. About two-thirds of the women were “very satisfied” with the compassion and understanding shown to them and the information given to them (PHAC, 2018). This statistic implies that a quarter of the new mothers’ population did *not* have “very satisfactory” experiences. Nevertheless, these simplified satisfaction measures do not provide information about the experience beyond not “very satisfactory.” The experience of women in maternity care and the life-altering event of becoming mothers is abundant with rich nuance, which cannot be captured or entirely understood with statistical data.

This research will explore a diverse set of experiences around maternity care, satisfactory service experiences, and the impact of scientists/hospitals/HCPs/marketers on satisfaction. Most importantly, I will look at the actions and reactions of women when encountering science in conversations with their HCPs. To do this, I will use marketing theory and the multiple lenses of science, power and respect to examine the relationship between a patient and her HCP.

1.2 The Research Question:

“The balance of medical knowledge and social power in the provider-patient relationship is nearly always tipped toward physicians, and physicians often take a leadership role with respect to decisions in medical encounters” (President’s Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, 1982 as cited in Makoul & Clayman, 2005, p.301).

This evidence is nearly forty years old, and much of the literature on the subject is dated. New calls for action from the cultural realm of pregnancy suggest that it is time for women to “insist that medical professionals and scientists listen to us, the people on the front lines having the babies” (Garbes, 2018). With the advent of technology and information access, and public and social movements toward equality, my research explores the dynamics that characterize relationships between HCPs and patients, and the communication between relationship partners.

To understand science communication in health and precisely a maternity care context, I used the following questions to guide this research: ***How do patients experience and navigate the scientific aspects of their conversations with healthcare practitioners? Specifically, what are the factors that influence patients’ experiences when navigating scientific conversations? What are the outcomes of patients’ experiences of science?*** The overall aim of this research project is to study science communication through multiple lenses of power and respect. This project is situated within both marketing and healthcare literature. I explore how science-based conversations, the navigation of medical information, and patient-HCP relationships impact overall satisfaction with pregnancy and birth experiences.

1.3 Research Area and Overview

My research looks at how one specific type of communication affects the patient-HCP relationship dynamic: decision-making conversations, and specifically medically complex subject matter. While my research can be applied to all types of patient-HCP relationships, the focus of this study is on maternity care and health in pregnancy. Maternity care is an arena of healthcare that is focused on patient-centred care (PCC) and autonomy for patients. Moreover, exaggerated power imbalances have been found between women and their HCPs (Fisher, 1984).

In recent years governments, health authorities and leaders in the medical and public policy fields have advocated for patient-centred healthcare (Heatley et al., 2015). These are approaches that prioritize the experience of the patient/person. These approaches are epitomized by a decision-making strategy called shared decision-making (Makoul & Clayman, 2006). This model of patient-HCP interaction called for a relationship based on mutual respect and joint interest to achieve beneficial outcomes and where partners (e.g., patient and HCP) share decisions and responsibility (Karneili-Miller & Eisikovits, 2009). Shared decision-making ideologies also call for a balancing of power: equal weighting of the ‘insider’ knowledge of the patient’s experience and the expert knowledge of the HCP. Furthermore, a shared decision-

making model works best when patients understand the science of their decisions (Huo, Binning, & Molina, 2010).

Participation in care is predictive of patient satisfaction and positive health outcomes (Hack, Degner, & Dyck, 1994). Yet, interactions with HCPs are complex and often emotional. Effective communication is a component of the ideal patient-provider relationship (Jucks, Paus, & Bromme, 2012). Still, many health professionals and scientists are functioning under the long-held notion of a public science knowledge deficit.

The public science deficit model assumes that a lack of knowledge causes uncertainty and scepticism toward science, and that facts presented to the public will ‘correct’ their views (Seethaler, Evans, Gere, & Rajagopalan, 2019). The science deficit model may be erroneous in the current world of abundant information flow; with so much information available, patients do not necessarily lack science knowledge. Additionally, previous research has shown that the presentation of information does not change opinions of science concepts (Bes, Dudo, Yuan, & Ghannam, 2016), indicating that it is not a lack of knowledge (deficit) leading to the stigmatization of science, but a lack of interest or inability to discern credible sources. Approaching patients with a science deficit mindset can impede fully informed, evidence-based, and fully shared decisions because it assumes less agency and autonomy on the part of the patient. The public science deficit can bias an HCP’s perception of the patient before an interaction occurs; this can cause HCPs to assume their traditional roles of power due to their medical expertise. Despite the science deficit mindset, HCPs often use scientific and medical information with patients because it is necessary to achieve informed consent and patient participation in decision-making. This traditional knowledge transmission structure can contribute to an imbalance in power between the patient and practitioner.

Medicalization impacts the traditional knowledge transmission and power structures. The medicalization of childbirth is highly debated in current research of pregnancy, childbirth and women’s health (Johanson et al., 2002). Medicalization is a process by which nonmedical problems become defined and treated as medical problems, usually in terms of illness or disorders (Conrad, 2007). The driving force behind medicalization is the perceived and real risk to fetal and maternal health (Parry, 2008). Therefore, medicalization is characterized by the increase in medical intervention (Johanson et al., 2002). Recognition of the medicalization literature is important to my research. Many of my participants were aware of this rhetoric and increased HCP tendencies toward medical intervention in pregnancy and childbirth.

The research on decision-making in medical settings is woefully weighted to the perspectives of HCPs (e.g. Jucks, Paus, & Bromme, 2012; Makoul & Clayman, 2006; Epstein, 2013; etc.); there is significantly less information available on the patient perspective. Therefore, my project will shed light the patient side of the healthcare coin by exploring science communication with a marketing lens, where healthcare is the service provided. Within marketing, communication is a means of transaction and exchange. Power and respect are important dynamics within such exchange relationships (Jin, He, & Zhang, 2014; Rucker, Galinsky, & Dubois, 2012). When the status of scientific information becomes a factor, equal power and respect in the relationship—which normally are factors for success (Dubbin, Chang, & Shim, 2013)—could be more difficult to achieve.

The definition of science in the context of this research study is important to clarify. Science is the intellectual and practical activity encompassing the systematic study of the

structure and behaviour of the physical and natural world through observation and experiment. (Lexico.com, 2020). Medicine is applied science. My participants in this study were sometimes confused about the definition of science in this context. When my participants asked me to clarify what I meant by “science,” I explained it includes the biology, physiology, biochemistry, and pharmacology involved in fetal development through cell division, bodily functioning, hormones, medications, blood testing, fetal imaging, genetics and the list continued. These are the conversations and the science information encountered in my research. The additional advantage to conducting research in this field is to keep pace with the evolution of medical practices. New approaches, techniques, technologies, and discoveries are made constantly in the pursuit of improved medical care and patient outcomes.

Science is in pursuit of discovery and innovation, much like medical studies. Such innovations include the evidence-based medical model, and PCC, which is gaining support and reach in all medical communities (Moskowitz & Bodenheimer, 2011; Clancy & Cronin, 2005; Eklund et al., 2019). Along with this forward movement of medical practice, research to capture the patient experience should evolve concurrently. New availability and access to information, increased rates of education, and the adoption of medical knowledge into everyday use will influence patient understanding of medical information in novel ways. Furthermore, patients’ perceptions relating to scientifically based medical decisions are impacted by the dynamic, ever-changing political climate and cultural landscape. For these reasons, my research can contribute to understanding women’s interaction with science in maternity care.

Chapter 2: Background and Theory

This section is a thorough examination of the many facets that frame the context for my research project. I will begin with a disclaimer of some of the terminology used in this work. I then offer a discussion of the scope of this project: maternity care, decision-making and science conversations. After narrowing the scope of the project, I discuss the importance of PCC and participation in care. These elements are essential to the current research as they are the ultimate goals of healthcare systems for the benefit of patients. PCC and more participation in care create an environment that is characterized by equality and respect. Due to its complexity and inherent status, science can upset power balances and respectful engagement. Therefore, power and respect are useful lenses through which I consider science communications and conversations. These lenses lead to a discussion of decision-making. By being marketing oriented, the focus of this thesis is on how patients make decisions. This section will discuss shared decision-making and evidence-based decision-making. They are two relevant decision-making paradigms to the research at hand and goals for both HCPs and patients. I then discuss the marketing literature and service experience goals. I will contextualize this research project within the field of science communication and the broader discipline of marketing. The partners in a marketing relationship are exchanging time, service, information and more. Therefore, this context is vital to a complete understanding of the relationship dynamics between an HCP and their patients. Next, I define power and discuss it in the course of explaining which interpersonal factors are impacting health decision-making. This section concludes with descriptions of interpersonal dynamics and their role in my study. My research is based on the idea that science can impact the relationship between HCPs and patients, which affects decision-making. Relational characteristics are a strong theoretical basis of the thesis.

2.1 Explanation of Terms

The first term that should be clarified is the use of “*patient*” to refer to my participants. In my research, and supported by the literature, the term “patient” is not always welcome. The term has many connotations attached to the idea of medicalization—that these women suffer from an illness or disease. This does not consistently align with the philosophies of care held by HCPs or my participants, or the community of birthing people. With that said, I will continue to use the term patient in this study to refer to my participants, as connoting one end of a healthcare relationship.

I will also talk about women and woman-centred care. I will use pronouns like she and her. The more politically correct term, in this case, would be “people” or person-centred care and pronouns like “them” and “their.” This research acknowledges that gender is a spectrum of identity, and individuals can choose to identify themselves anywhere along that continuum of masculine to feminine. Humanness and personness do not rely on the identification of gender, nor does whole personness. In this context, “woman” will connote only those that biologically have the necessary body parts to become pregnant and birth a baby. This work’s assumption relies on the biological foundation of sex—not the personal identification of gender. Based on the data from the participants, and literature of individuals who fall further on the feminine end of the spectrum in how they present themselves, the findings relate to how women interact and

process information, as well as how they interact with HCPs and society. Pregnancy is a phenomenon and experience that is traditionally in the domain of women. In recent times, this understanding is being challenged and expanded. Gender is not the focus of this study. It would require more research to make any claims about my participants' gender identity and the impact of gender identity on the theoretical framework. The participants in my study were recruited based on the understanding that they have given birth in the last year and consequently have the biological denomination of "female." Therefore, they will be called women within this thesis.

My participants were also recruited as mothers. The recruitment material called for new mothers, and people who have given birth in the last year. This means that my participants self-identified as mothers to participate in the study. To that end, these participants referred to themselves as mothers, moms, and mommas. In my personal opinion, the titles could extend to superheroes and super-humans.

Finally, I will refer to my participants as consumers. They are, in fact, consumers of the healthcare system. In Canada, this connection is less clear and salient. Canada has a universal, publicly funded healthcare system called Medicare. It is not a single, nationally mandated system, but a provincially based, tax-funded public insurance plan. The Government of Saskatchewan offers coverage in the province of Saskatchewan, where this research takes place. As consumers are often not paying out-right at the doctor's office, this connection between a service being offered and compensated for monetarily is not apparent for many patients. However, they are consumers/clients of the healthcare system, with all the rights and responsibilities those names entail.

The term HCPs means healthcare practitioners. HCP in this context will primarily mean general practitioners (GPs), also known as family doctors and obstetricians (OBs). Commonly OBs are also referred to as obstetrician-gynecologist (OB-GYNs); these are doctors that specialize in women's health. They have expertise in female reproductive health, pregnancy, and childbirth. All of my participants used OBs after transferring to their care from their family doctors. However, my patients came into contact with several other healthcare professionals. Other HCPs include nurses (of all levels), specialists, paramedics, consultants, physiologists, chiropractors, pelvic floor specialists, and more. Primarily the focus of this research was on my participant's science-based conversations with their primary doctors for pregnancy and childbirth, meaning their GP, or OB. However, other medical professionals often played supplementary roles for my participants. In my research, the term HCP refers to them as the service provider side of the healthcare relationship with a patient.

I will also be using the term maternity care. Maternity care used in this context covers the timeframe from when my participants discovered they were pregnant—or decided to become pregnant—through their prenatal and obstetric care, through labour and delivery and into postpartum care. These stages of maternity care are so interconnected that my participants did not differentiate between the stages. Therefore, this research study covers decision-making at all points of the maternity care journey. There will be other uses of terminology throughout this thesis; those terms will be explained as relevant.

2.2 Narrowing the Scope

Science communication and complicated information exchange are used in many research fields and real-world domains, including education, public policy, international

development, environmental activism, and research promotion. My research will focus on healthcare, an area of science communication in which understanding and comprehension are imperative for ethical and informed decision-making. Science communication, including “science,” “science-based conversations,” and “science-aspects of care” will be used to encompass the conversations in which HCPs are using technical language or describing the medical procedures, processes or functions related to pregnancy and maternity care.

My research focuses specifically on maternity care, which has a strong history of PCC and woman-centred care. These approaches aim to increase inter-professional communication across the maternity care team and active participation by women in maternity care (Heatley, Watson, Gallois, & Miller, 2015). PCC ideally involves strong patient-HCP relationships as well as protocols for shared decision-making (SDM). In a maternity care context, however, because the relationship between HCP and patient is between HCP and *female* patient, power systems are often exaggerated (Fisher, 1984).

This research is further narrowed by focusing on specific types of interactions between HCPs and female patients, namely, decision-making conversations. In maternity care, there are many different decisions to be made about health: options for care and intervention, alternative medicines, reduced medical intervention, and many more. As researcher Guliani (2015) notes, there is a strong mix of maternity care providers in Canada. While GPs and OBs remain the most common, there has been increasing support for the safety and effective management by midwives of low-risk pregnancies. Each type of HCP offers a different style of prenatal and intrapartum care, with OBs relying on medical and surgical interventions more than other providers (Guliani, 2015). This research will explore how HCPs and patients communicate with each other about these options, and the science surrounding them, which ultimately impacts patient decision-making.

Women repeatedly visit the same care provider or care team over several months to have well-established and well understood interactional dynamics (Guliani, 2015). These relationships are another reason that maternity care is a useful context for my research. This relationship structure could mean that my research applies to other extended-care situations, like chronic conditions, pain, and extended illness. Many of the care paradigms and theories related to care relationships focus on illnesses that create a need for medical care, and the consequent HCP relationships (Dubbin et al., 2013; Thomas, Mitchell, Rich & Best, 2018). Maternity care is similar; it is a condition that facilitates the need for people to visit an HCP and create a relationship. Therefore, the findings of this research have the potential to generalize to other health contexts.

2.3 Patient-Centred Care (PCC)

Here, I present a philosophy of healthcare present in current care situations and significant to my research. Healthcare marketing for many Saskatchewan health regions advertises their patient-centred and family-centred approaches to care. PCC is an overarching philosophy for many HCPs and systems—such as the SHA, who indicate that they are a ‘family-centred care’ provider of maternity care.

PCC is a philosophy of care that is important to patients. Providing medical care with the patients’ cultural values, needs and preferences at its core is the goal of PCC (Dubbin et al., 2013). Three broad domains capture the construct of PCC, according to Dubbin et al. (2013): 1)

an HCP's understanding of the patient within their biopsychosocial context; 2) shared understanding of the clinical condition, and; 3) sharing power and responsibility. This approach to care holds that humans are unique entities, recognizes the multidimensionality of the human experience of health and illness, offers opportunities for patients to participate in their care, and enhances the patient-provider relationship through mutual understanding (in other words, respect; Dubbin et al., 2013). Participation in care produces positive outcomes in a maternity care context. Nevertheless, while this patient and woman-centred approach is established in maternity care, it is not prominent in many interactions of maternity care (McCormack et al., 2011).

Since its inception, PCC has been recommended across all healthcare domains and is regarded as good medicine (e.g., Street, 2001), but it is poorly understood and implemented (Eklund et al., 2019). Reported PCC outcomes include patient satisfaction, greater enablement, more significant improvement in symptom burden, and positive health outcomes (Eklund et al., 2019). Other outcomes include providing HCPs with opportunities to fully understand their patient's perspectives, personal circumstances, and interaction goals (Heatley et al., 2015). Therefore, participation should be encouraged and shared equally between HCPs and patients. Heatley et al. (2015) argue that HCP's responsibility is to encourage and create an opportunity for patient participation.

Active participation from the patient prevents HCPs from 'sticking to the script' and prompts HCPs to respond within the norms of social interactions (Street, 2001; Heatley et al., 2015). Naturally, active participation will influence communication dynamics between HCPs and their patients (Street, 2001), which may, in turn, affect power dynamics and perceptions of respect between HCPs and their patients. These benefits of patient participation and patient-centredness overlap with the essential elements of decision-making models (see 2.4 Shared and Evidence-based Decision-making; Makoul & Clayman, 2005).

Though it seems that patient-centredness is challenging to achieve in practice, PCC and participation in care should be utilized regardless of the challenges and barriers. Research has lauded the benefits of having the patient experience at the centre of healthcare decision-making. Both maternity consumer advocacy organizations and the international research community suggest that patient/healthcare consumers would prefer to participate more in their care (Lane, 2006; Maternity Coalition, 2013, both as cited by Heatley et al., 2015). My research contributes to research on patient participation in care by addressing barriers to equal relationships between HCPs and patients, in this case, science communication, its impact on outcomes, and the factors that shape the science experience.

2.4 Shared and Evidence-Based Decision-Making

The focus of this project is on decision-making in a maternity care context, which ideally should include shared responsibility and scientific evidence. There have been increased calls for patients to play a more significant role in decision-making (Street, 2001; Garbes, 2018; Makoul & Clayman, 2005; Parry 2008). When responsibility is shared, and SDM techniques are engaged, then typically equal importance is placed on the patient's expertise regarding their own experience with the illness or condition, and on the HCP's expertise in medical training including diagnosing, treatment and prognosis, among other areas of healthcare (Makoul & Clayman, 2005).

While some argue that SDM means patients must share equally in the decision process, others contend that patient role preferences should be discussed and accepted (Makoul & Clayman, 2005). Researchers investigating the decision-making of men recently diagnosed with prostate cancer found that most men (68%) preferred decision-making be shared equally between them and their doctor (Steginga & Occhipinti, 2004).

SDM is often positioned as the ideal middle ground between paternalism and informed choice (Makoul & Clayman, 2005). Makoul and Clayman (2005) describe the ideal (but not essential) elements of the SDM model: discussion and definition of patients' and HCP's opinions, delivering unbiased information, presenting evidence, and mutual agreement on a course of action. Makoul and Clayman's (2005) essential elements include: HCP defines and explain the problem; HCP reviews options; discussion of pros and cons, risks, costs, and benefits; patient explains their values and preferences; discussion of patient's ability and self-efficacy; both parties continually check understanding of facts and perspectives throughout the process; arrangements for follow-ups to track decisions and outcomes.

Important to SDM is, of course, knowledge-sharing. The patient shares their experience and history, while the HCP shares the risks, benefits, and technical aspects of the condition or intervention (Makoul & Clayman, 2005). The HCP must explain the rationale and science to the patient following traditional structures of knowledge transmission. Though SDM shifts power and control to the patient, the process may reinforce power systems through the use of scientific information sharing, which privileges the HCP. Researchers also note that biomedical and technological knowledge is privileged, allowing physicians to play a vital role as the 'authority' over women's experiences of pregnancy (Davis-Floyd, 1992, as cited by Parry, 2008).

There is a long-held notion that 'knowledge is power' and that knowledge acquisition can be a path to empowerment. Fogg-Rogers, Bay, Burgess, & Purdy (2015) researched a public health science festival exploring preferred avenues for public engagement. One of their main findings was that the public perceived knowledge and understanding as empowering greater health literacy. Their participants indicated that more information would enable them to discuss and interact with scientists and doctors with more confidence (Fogg-Rogers et al., 2015).

My research will use SDM and PCC and its tenets as the ideal goal of patient-physician interactions. Recommendations and outcomes of this work are in pursuit of this ideal. The SHA advocates for PCC, however traditional medical practices may be inadvertently working counter to a perfect SDM situation. SDM may or may not be present in the interactions studied in the current research. Either way, patient perceptions of power and respect will be central to the research aims. At its best, the process of SDM involves presenting accurate information about alternative strategies, including no treatment, in an unbiased fashion so that individual preferences and values can be integrated with science (Clancy & Cronin, 2005).

Evidence-based decision-making (EBDM), compared to SDM, is vital to the scientific basis for healthcare practices. EBDM is a process for making decisions about a program, practice, or policy grounded in the best available research evidence and informed by experiential evidence from the field and relevant contextual evidence (Clancy & Cronin, 2005). Clancy and Cronin (2005) explain that for centuries, medical practice has been primarily based on clinical experience and judgement. They note that several recent developments have increased the promise and imperative of EBDM: rapid growth in biomedical science and innovation; development of the evaluative clinical sciences; advances in communication and IT; and a

growing recognition that EBDM provides a framework for addressing healthcare policy challenges. There has been a massive explosion of medical studies and increased access to that information by both the HCP and the patient (or public; Clancy & Cronin, 2005). This information pushes evidence to the forefront of care.

The HCP can employ evidence in many ways through increased access to health information technology. Previous studies, mainly conducted at a small number of institutions with sophisticated clinical information systems, have produced substantial evidence that electronic pathways—from evidence-based reminders to clinical decision support systems—can improve quality and efficiency and reduce medical errors (Kuperman, & Bibson, 2003). Increasing the relevance of scientific evidence to clinical and policy decisions relies on a transparent approach to evaluating the quality of scientific studies and a broad debate about the interpretation of scientific findings and their optimal application, which poses challenges for HCPs (Clancy & Cronin, 2005). Yet, employing evidence-based information adds workload to the HCPs; HCPs must remain current on the available evidence and integrate the presentation of evidence into conversations with patients (Clancy & Cronin, 2005).

Evidence must be evaluated and navigated by both the patient and HCP in order for EBDM to take place. Evidence can also be used by patients to judge unwanted variations in care or service (Clancy & Cronin, 2005); evidence helps create consistent care across health regions, and HCPs. EBDM requires patients to recognize that research findings derived from a single study are rarely definitive while replicating results in multiple studies ensures that the findings are reliable. A strong patient-HCP relationship can facilitate the acceptance of reliable sources. Clancy and Cronin (2005) note that systematic reviews, based on quantitative techniques to evaluate and synthesize a body of research in a particular area, represent efforts to incorporate science into clinical decisions. Now, there is a recognized need to expedite this process to keep up with the continuously growing literature and the need to transfer knowledge to the healthcare consumer and clinician at the point of care (Clancy & Cronin, 2005).

EXHIBIT 1
Uses Of Evidence For Decision Making

| Type of decision | Decisionmaker | Role of evidence |
|--|---|------------------|
| Product approval | FDA | Level I |
| Product purchasing, for example, formulary selection | Health plans, PBMs | Level II |
| Clinical decisions | | |
| Practice guidelines | Clinicians | Level II |
| Shared decisions | Clinicians, patients | Level III |
| Assess and improve health care quality | | |
| Internal improvement | Health care organizations | Level II |
| Public reporting | Payers/purchasers; states | Level II |
| Pay for performance ^a | Payers/purchasers | Level II |
| Choice of plans or providers | Consumers; employers | Level III |
| Select benefits and coverage | Insurers; employers | Levels II–III |
| Organizational and management decisions | Health care organization leaders | Level IV |
| Care options ^b | Individuals; patient and disease groups | Levels III–IV |

SOURCE: Authors' analysis.

NOTES: Level I: rigorous evidence required (absolute requirement); level II: evidence is predominant input when available, supplemented by expert judgment; level III: available evidence is one but not the only input to decisions; level IV: available evidence limited, other considerations important. FDA is U.S. Food and Drug Administration. PBM is pharmacy benefit manager.

^a Pilot programs.

Figure 2.1 Uses of Evidence for Decision Making (Clancy & Cronin, 2005)

Researchers Clancy and Cronin (2005), present a relevant table which showed the type of decisions for which evidence is used in a healthcare setting, and who is involved in the decision-making.

Figure 2.1 indicates that HCPs and patients have several points of EBDM and are rarely alone in their decisions—they make decisions in conjunction with each other and employers, insurers, healthcare leaders, and

regulatory bodies. It is also interesting to note that Clancy and Cronin's (2005) table has patients, payers/purchasers, consumers, *and* individuals. All of this nomenclature can refer to the same person. At different points during their care, patients can be individuals *and* consumers, which underscores the complexity of EBDM, and the various hats women wear in maternity care decision-making.

Evidence is used to make policy and systematic changes and decisions at the patient's level. Clancy and Cronin (2005) show that clinical practice guidelines have evolved during the past twenty years from recommendations based mainly on expert judgment to recommendations grounded primarily in evidence. Patients are increasingly aware of how evidence is a prerequisite for good healthcare decisions and policies (Clancy & Cronin, 2005). Clancy and Cronin (2005) note that expert consensus comes into play in guideline development only when evidence is lacking.

EBDM may not only rely on published scientific evidence but also on the HCP's experience and expertise—as well as the patient's own experience and personal health expertise. EBDM requires evidence to be available from the research community. Some women's activist groups have been catalyzed by women who realized how little was known about gender-specific treatment effects and the natural history of the disease (Clancy & Cronin, 2005; Garbes, 2018). Increased awareness of the necessity and importance of evidence to inform clinical decisions has led to increased consumer demand for this information (Stevens, Milne, & Burls, 2003). Therefore, patients are required to integrate evidence, expert opinions, and personal experience to make decisions.

My research project aims to explore patient-HCP relationships and the pursuit of PCC as it impacts navigating decision-making with scientific evidence. Clancy and Cronin (2005) suggest that evidence alone will never resolve the numerous complex decisions involved in taking care of individuals or making healthcare decisions for diverse populations. In order to navigate evidence and science, HCPs and patients must converse to make decisions as a team. Science carries its own rules and knowledge, and consequently, it carries status and power. Power dynamics versus equality-based conversations will either obstruct or facilitate the use of science to achieve PCC.

2.5 Science Communication and Marketing

Marketing today is more relevant than ever, with the advent of technological advances, access to information and the demands of a marketplace. Organizations, including institutions like hospitals and healthcare systems, are moving from the idea of transaction and exchange to a more relationship-focused view of marketing (Grover, 2016). Patients are now consumers of healthcare, and they have more specific requirements and demands of the services they are provided. These requirements include expectations of information dissemination/knowledge transfer and a satisfactory service experience.

Healthcare marketing aims to improve the health and well-being of an individual, group, or society (Kotler, Roberto, & Lee, 2002). My research is relevant at an individual level. I describe how individual patients navigate science with their HCP. Yet, the implications of this work contribute to behaviour change at other levels, such as the health providers level, the community of women giving birth in the future, or at the systematic level. Patient empowerment is a value concept offered by healthcare marketing to help consumers with medical concerns to

support voluntary behaviour change (Ben Ayed & El Aoud, 2017). Healthcare marketing could extend, through my research, to include changes in attitudes toward science and medical science as a path to respectful and whole-person care rather than a means to a medical end.

A marketing perspective will be useful for gaining insight into the exchange relationship and improvement in healthcare services. Two-way communication represents an important starting point for improving science communication. It can help replace the traditional top-down information transmission model with one that centers on fostering genuine dialogue and mutual understanding (McCallie et al., 2009 as cited by Besley et al., 2016). This mirrors the healthcare perspective of patient participation in care and the SDM model of strong communication lines and equal weighting of power. Furthermore, marketing literature is beginning to identify a multitude of ways that marketing theories can be flexible enough to apply to public health and consumer needs (Royne & Levy, 2011).

An advantage of studying the effects of scientific conversations in healthcare interactions from a marketing standpoint is that communication is a well-understood and firmly held tenant for marketers. Medicine is generally considered to be the application of pure science (Burns et al., 2003). Healthcare is an area of science that depends on effective scientific communication for healthcare marketing and knowledge transfer. The marketing literature is essential to understanding the two-way and goal-oriented communication of decision-making conversations (Grover, 2016; Burns et al., 2003). I will use foundational marketing communication pillars to understand the processes and motivations of partners in communication practices.

Science communication is the practice of sharing, informing, educating, and raising awareness of science-related topics. From a marketing perspective, science communication aims to enhance public scientific awareness, understanding, literacy, and culture by building AEIOU (awareness, enjoyment, interest, opinion, understanding) responses in its participants (Burns et al., 2003). This type of marketing and communication empowers the public to attain an interest in science, the confidence to talk about it, and a willingness to engage with science whenever it crosses their paths. It also provides skills, media, activities, and dialogue to enable the general public and science practitioners to interact with each other more effectively (Burns et al., 2003). One of the most fascinating and challenging aspects of scientific disciplines (including medicine) is the pursuit of discovery, invention, and innovation. Science fields are continually evolving and changing. Therefore, communication practices should be evolving and changing, as well. My research will contribute to the evolution of science communication practices.

The partners involved in science communication are not clearly defined in most real-world situations or research (Burns et al., 2003). For the most part, the partners are the science experts sharing with non-experts, but it could also mean experts sharing with experts, or scientists sharing with the public. In my research, the partners in a science communication exchange are the HCPs sharing their medical knowledge with the patients. Physicians could be seen as persuasion agents in the context of my project, where they encode messages about treatment options (Friestad & Wright, 1994; Karnieli-Miller & Eisikovits, 2009). HCPs try to position their message in a particular way. The patient is the decoder who has to make sense and use of this message.

According to persuasion knowledge theories, consumers develop personal knowledge or folk knowledge about persuasion attempts and their reactions to them (Friestad & Wright, 1994; Isaac & Grayson, 2017). Traditionally, persuasion is met with consumer skepticism, a distrust of

claims made by a marketer (Isaac & Grayson, 2017). Studies have shown that HCPs use various forms of power to persuade patients into treatments preferred by the HCP (Karnieli-Miller & Eisikovits, 2009). According to one study by Karnieli-Miller and Eisikovits (2009), these include expert power, referent power, emotional power, temporal power, and predictive power. There are various responses to these perceived persuasion attempts, including leaving the HCP's care, distrust and non-compliance, and finding this directive role of the HCP as appropriate and welcome (Karnieli-Miller and Eisikovits, 2009; Cohen & Britten, 2003). Persuasion knowledge, such as the medicalization rhetoric that many patients are aware of, can potentially cause skepticism and social distance between maternity care patients and their HCP.

The relationship between a patient and their HCP is also a relationship between a consumer and a service provider. These two actors on the stage of marketing are, importantly, engaged in science communication and information exchange as a determinant of many outcomes. As consumers, patients have to make decisions that impact the service they receive, much like any other market decision. The collaborative nature of these decisions reinforces the focus of this study on communication and relationships.

Complex conversations, knowledge transfer, and relatability are essential elements of patient-HCP interactions; however, there is a divide between these partners. This divide is sometimes known as the public science deficit—as described in the introduction—a deficit characterized by the notion that the public is ignorant of science concepts and that information will change public attitudes. The public science deficit model suggests that the general public has a significantly lower level of scientific knowledge; therefore, science can be complicated and scary. To bridge this gap, scientists and HCPs must communicate. Scientists are often too highly trained in their specific field of research to have the proper perspective for effective communication with individuals outside of their domain (Tan & Peruch, 2018). Scientists also frequently lack the opportunity or proper environment to engage in successful communication (Tan & Peruch, 2018). They are creating a divide between scientists and the public that is mirrored by HCPs and patients.

2.5.1 Satisfaction with Service

A marketing lens provides the view that healthcare can be a service experience for the benefit of the consumer/patient. Hausman (2004) suggests that service encounters are what patients rely on to determine service competency and, ultimately, repatriation. From marketing literature, we know that consumer well-being is impacted by an overall positive, whole and satisfactory experience (Crosby, Evans, & Cowles, 1990; Barry, Wall, & Carbone, 2006; Hausman, 2004). Ultimately, patient well-being is the goal of HCPs, healthcare systems, and service providers alike. From the marketing literature, it is well established that consumers are motivated to engage with and return to positive and satisfactory experience (Barry et al., 2006; Hausman, 2004). My research provides novel insights to the marketing literature through its unique context.

Marketing literature holds that services are performances rather than objects. Therefore the primary source of value creation for the purchaser is the performance (Berry et al., 2006). In general, services provide more consumer “touch points” than do manufactured goods (Berry et al., 2006); there are more opportunities for the consumer to evaluate the ‘product’ of service. Purchasers of services are often present in the place that the service is created—they physically

attend the hair salon, autobody shop or hospital. The “touch points” and the environment are part of the consumer’s overall experience. Service consists of the intangible, and discrete clues that consumers evaluate. Berry et al. (2006) suggest that few service experiences are more critical, variable, complex and personal than being hospitalized. Service research literature claims that patients are some of the most alert and attuned consumers, as they are eager for evidence of a hospital’s competence and caring (Berry et al., 2006).

Service experience evaluations by patients rely on interaction with HCPs. Particularly when patients are not in a position to judge the quality of their medical treatments, social and interpersonal cues are evaluated. Hausman (2004) states that the patient-HCP relationship is made up of interpersonal or social elements that constitute a personal bond. Social elements consist of functional quality, interactive quality, and cooperative behaviours, which in the healthcare field are referred to as affective care, expressive care and bedside manner (Hausman, 2004). Some of these social cues for positive interaction with HCPs, according to Hausman (2004), can include trust, concern, communication, courtesy and attentiveness.

Consumers evaluate services based on the performance of the service provider. Experience-based services are now being studied from the consumer point of view, as opposed to a provider’s point of view. Consumers’ perceptions (and sometimes co-creation) of value are essential to providing ‘good service’ (Tynan & McKechnie, 2009). Many marketing research agendas are looking at services through Vargo and Lusch’s (2004) service-dominant logic, or a newer customer-dominant logic (Heinonen, Strandvik, Mickelsson, Edvardsson, Sundström, & Andersson, 2010). Both these foundational logics suggest that service is a core component of marketing and that the customer is essential in the orchestration of value creation (Tynan, McKechnie, & Hartley, 2014). Service value is no longer solely related to service offerings or providers (Tynan et al., 2014). My research attempts to do the same by studying the service experience in the healthcare system from the patient’s point of view.

Satisfaction is the ultimate goal of many services, including hospitals and doctors’ offices. One of the core determinants of customer/patient satisfaction is meeting expectations (Berry et al., 2006). Much of the service-based experience literature has established that consumers seek positive emotional experiences with service providers (Berry et al., 2006; Tynan et al., 2014). These positive experiences lead to strong marketing relationships, consumer loyalty, and good word-of-mouth post-experience (Hausman, 2004; Berry et al., 2006).

Consumers use various cues to determine what those expectations should be, and whether they have been met or exceeded. Berry et al. (2006) suggest that consumers use three types of cues to determine the three levels of expectations: functional cues, mechanic cues, and humanic clues. Service marketers use functional and mechanic cues determine consumer expectations and meet them; marketers use humanic cues to connect with consumers, affording them the opportunity to exceed expectations (Berry et al., 2006). In a healthcare setting, functional cues indicate the technical quality of the service, such as equipment function, whether call-backs were made as promised. Mechanic cues in healthcare are the sensory cues such as cleanliness, colour schemes, or waiting room chairs. Finally, and importantly, humanic cues emerge from the service providers’ behaviour and appearance, as per Berry et al. ’s (2006) assertions. In this case, the actions of the HCPs are the humanic cues. This will include the conversations they have with patients, their communication abilities, and their ability to treat consumers as equals and with respect.

2.6 Interpersonal Dynamics

Because my research is about relationships between HCPs and patients, it is crucial to understand interpersonal dynamics as a background. In this section, I will briefly review the literature on several interpersonal dynamics concepts that will guide my subsequent data analysis: power and respect (the two key lenses for this study), as well as agency and trust.

2.6.1 Power and Respect

Power. Power systems and social roles affect interaction partners and interpersonal dynamics. Power refers to control over critical resources (i.e. outcome control) and is a dimension for creating rank-order in a social context (Dépret & Fiske, 1993; Fiske, 2010; Galinsky et al., 2003; Georgesen & Harris, 1998, 2000; Gruenfeld et al., 2008; Keltner et al., 2003; Overbeck & Park, 2001 all as cited by Blader & Chen, 2014). Blader and Chen (2014) go to great lengths to distinguish power and status; these two concepts are often used interchangeably. They note that one of the major differing factors is the inward orientation of power (Blader & Chen, 2014). In contrast, status is outwardly defined where a person perceives themselves in the context of others. This inward orientation of power toward one's own goals and disposition in high-power individuals results in egocentric orientation in social encounters. Powerful individuals are free from social norms and normative pressures, where people seeking higher status must concern themselves with social judgement (Blader & Chen, 2014).

Patient empowerment, as discussed earlier, helps create behaviour change through healthcare marketing. The idea of an empowered patient means that the person experiencing the health problem is best positioned to define their needs and propose suitable solutions to their situations (Aujoulat, Marcolongo, Bonadiman, & Deccache, 2008). It has long been held that an empowered individual will be healthier due to a robust power-health relationship (Ben Ayed & El Aoud, 2017). Concepts such as empowerment, power and respect have been studied in sociology, psychology, behavioural medicine, education, political sciences, and economics. As a result of a pluralist understanding, these concepts can be treated according to different levels (individual, community, and social) and perspectives (psychological, social, ethical, political, organizational, and community; Gibson, 1991; Ben Ayed & El Aoud, 2017).

Respect. Respect, like power, is firmly rooted in cultural notions (Blader & Chen, 2014). Respect is about the willingness of someone to show some type of consideration for another person (Simon, 2007), or a behavioural manifestation of believing another person has value (Grover, 2014). Grover (2014) suggests that there is a general understanding that respect reduces to an appreciation for the object of respect.

There are two primary kinds of respect (Clarke & Mahadi, 2016): recognition/equality-based respect in a modern sense, is a moral obligation to respect those around one as human beings and implies that every person deserves equal levels of respect; appraisal/merit-based respect is based on judgments of a person's worthiness and infers differential respect. Both types of respect are considered in this research project.

Grover (2014) posits that the first type, recognition respect, is respect granted as a moral duty based on the virtue of a person having rights. This type of respect is not bound by the characteristics of an individual object of respect. Instead, it reflects an attitude or belief about how a person should be treated generally (Grover, 2014). Within the context of this research, and healthcare in general, patients and HCPs can expect to be treated politely and not insulted as a

matter of human dignity. Researchers suggest that this can be shown behaviourally as listening attentively to a conversation partner and conversing and cooperating as equal partners. This type of respect is based on human rights, and dignity is normatively called for in all human interactions; therefore, we expect to find recognition respect in patient-HCP interactions.

Appraisal respect is contingent upon an individual's desirable features or qualities, such as knowledge or talent (Simon, 2007). Also called merit-based respect, as per Grover (2014), a positive attitude toward a person comes from a positive appraisal of a person or their character-related features. This type of respect carries from one person to another and is afforded due to some activity that represents human excellence (Grover, 2014). In this study, scientific knowledge or insider knowledge can be one of many qualities that factor into a judgement of worthiness of respect. Competency has been shown to affect how leaders are perceived (Grover, 2014). Leaders who are seen as competent are perceived as worthy of respect and being followed. In the interactions within healthcare, this might mean assessing a conversation partner's expertise, knowledge, and health literacy to determine the next steps and decision-making.

Researchers studying respect are just beginning to look at the effects of respect, and the differences between the two types. Grover (2014) suggests that it is the motivation for engagement that differs between appraisal and recognition respect. Recognition respect involves a sense of duty to support humanity; people will treat someone else with courteousness and dignity because it is morally the right thing to do (Grover, 2014). On the flip side, appraisal respect is about status holders or people in powerful positions assessing the abilities and attributes of the less powerful and vice versa; people engage in appraisal respect for deferential and self-serving reasons to reinforce status (Grover, 2014). If deemed unworthy of appraisal respect, individuals will find that they are the less powerful in human interaction.

Other differences exist between the two types of respect in how people react based on the type of respect they are engaged in. Depending on the type of respect, several reactions or outcomes are possible: self-esteem and its consequences (Grover, 2014); social cohesion (Glasford & Johnson, 2018); job satisfaction (Decker & Van Quaquebeke, 2014); political judgements of the system and its candidates (Mölders & Van Quaquebeke, 2017a, 2017b) and more. Furthermore, the presence or absence of respect can affect: creativity and new ideas (Carmeli, Dutton, & Hardin, 2015); leadership satisfaction (Boezeman & Ellemers, 2014); feelings of value for ourselves (Rogers & Ashforth, 2017); help-seeking behaviours and job performance (Friedman, Carmeli, & Dutton, 2018); employee reactions to bad news (Richter, König, Geiger, Schieren, Lothschütz, & Zobel, 2016), and many more.

Power and respect go hand-in-hand yet are fundamentally different. Power is the amount of influence an individual has on those around them. Employing power with respect in mind can form genuine, beneficial, and close interpersonal relationships (Grover, 2014). Furthermore, Simon (2007) offers that equality-based recognition respect can then be mutually beneficial as it empowers the recipient. To maintain power, however, a powerful person may be reluctant to show respect for the powerless, as this essentially passes power from one social partner to another (Simon, 2007). However, when a powerful person grants the powerless equality-based respect, it results in reciprocated levels of power and respect between them.

Power inequality between social partners increases social distance, and in the ideal PCC and EBDM situations, the HCP should be attempting to limit social distance and power

inequality. Traditionally, HCPs have held power, and patients have been powerless, but SDM and patient participation in care argue for increased patient control and participation. Nevertheless, scientific knowledge has its status and power associated with it. When scientific information is used in specific ways by HCPs, it can impact the power dynamics and reinforce the traditional respect patterns. In this research, I explored the potentially counteracting efforts by HCPs and patients in pursuit of equality of decision-making in healthcare.

Power and respect are not the only interpersonal dynamics that affect conversation outcomes: agency and trust are factors that are felt between interaction partners. Agency is an extension of power and a pre-cursor to empowerment. Trust is based on a belief in someone else or something. Both of these factors impact decision-making and may be impacted by the status of science in patient-HCP relationships.

Agency. Agency is defined as the capacity, condition or state of acting or exerting power, or as an instrument, a person or thing through which power is exerted or an end is achieved (Lexico.com, 2020). People seek to establish areas of control to maintain a sense of personal agency (Nucci, 2005). A central or pervasive mechanism of agency is people's belief in their capability to exercise control over their functioning and environmental events (Bandura, 2001). Researchers Reiker and Read (2017) indicate that personal agency is impeded or enhanced by interactions among social positions. Agency is an essential concept in order to understand relationship dynamics. Agency often encompasses ideas of empowerment as well.

Empowerment is viewed as someone's capacity to make effective choices and transform them into desired actions and outcomes. The extent to which a person is empowered is influenced by personal agency—the capacity to make a purposive choice (Mulder, Pucci, & Havenaar, 2018). The difference here seems to be that agency is the action and empowerment of the outcome. Agency is the ability to make choices, separate from the realization or effectiveness of these choices (which is empowerment).

Similar to agency, power, and respect, trust is an element that will influence interpersonal dynamics. Trust is a significant predictor of several relationship outcomes. Patient narratives, suggested by theories of patient participation in care, contribute to a sense of trust. However, while a patient's thoughts and feelings should be easily shared with HCPs, they often are not; therefore, the holistic elements or humanic cues are lacking. Shifting mindsets to include the human element of the patient and her family can help an HCP can develop a compassionate presence built on trust and empathy (Milstein, 2015). Simply asking questions of the patient can help build trust. Exploring the patients' narratives and their experience of their disease (in this research, pregnancy) helps validate their sense of self-worth and wholeness (Milstein, 2015). Dependent on the level of trust a patient has in their physician, behavioural outcomes and needs for technical information will change. If, for instance, the patient is feeling particularly scared or threatened, they may be inclined to rely on the expertise of the HCP (expert opinion heuristic; Tversky & Kahneman, 1974). However, if trust is lacking, then reliance on this advice may be more difficult. If trust between the conversation partners is high, the patient may be less likely to put effort into understanding all the scientific knowledge (Elaboration Likelihood Model or Heuristic-Systematic processing; Petty & Cacioppo, 1986; Chaiken, 1980), relying more heavily on the expert. This can cause ethical issues concerning informed medical consent and reduce the amount of participation in care.

In summary, many theories are underpinning my research. Paramount to understanding the experience of women encountering and navigating science is the broader context of maternity care whose literatures colour the actions of HCPs and patients alike. My research also takes on the perspective of the healthcare marketing field. Therefore, marketing and decision-making theories are strong lenses for the research (service experience, relationships, and PCC, EBDM, and SDM). Finally, my research will look at the science experience of women in maternity care through the lenses of power and respect; therefore, a thorough understanding of the definitions of power, empowerment, respect (recognition and appraisal) and agency is essential.

In the next section, I will discuss the methods used to explore the research question of how women experience and navigate science-based conversations with their HCP. I will discuss the interviews and the techniques I used to produce findings that align with the literature presented above. Ultimately, women's experiences deserve to be heard for social change. In maternity care, change is needed. Marketing can play an important role in creating change and bettering the experience for women. The context of decision-making conversations allows for the unique perspective of healthcare marketing to be applied. With the interpersonal dynamics of power and respect in mind, this research will address the patient-HCP relationships, decision-making conversations, and science experiences to produce a theoretical framework of women's science experience to achieve PCC, wholeness and consumer satisfaction with the service experience.

Chapter 3: Methods

3.1 Methodological Approach

“Stories are data with a soul and no methodology honours that more than grounded theory” (Brown, 2012, p.252).

Grounded theory (GT) is a well-established qualitative approach where researchers learn *from* participants about a process or phenomenon (Richards & Morse, 2013). A GT approach encourages contributing to theoretical knowledge by balancing prior field knowledge with openness to new discoveries (Goulding, 2005). This study seeks to make sense of a complex and nuanced human experience with a multidisciplinary lens; therefore GT is appropriate. The goal of GT is to develop a theory that is limited, local, and grounded in the data by exploring the relationships between concepts in the phases of the process; my particular approach follows Gaussian Grounded Theory and leans toward constructivist and interpretive approaches (Richards & Morse, 2013).

GT calls for a blank slate when entering into the research process: it makes no assumptions before data collection. The only starting point is a topic, which in this case, is science communication in a maternity health decision-making context. After identifying the topic, GT allows the space for participants to define their problems, concerns, and understandings about the topic. Researchers then develop a theory and frame it within the literature. This poses a challenge for many researchers. Because the precise steps lack clarity, as an amateur, I learned as much as possible from those who pioneered GT; I describe my steps below.

I used GT methods to understand how patients navigate the scientific aspects of their science-based conversations with their HCPs and develop an integrative theoretical framework of the experience of science in a maternity care context. Richards and Morse (2013) suggest that reports may include diagrams of the process, or a summary of typologies, indicating the presence or absence of selected factors. I have chosen to use a framework showing the presence of factors to elucidate my findings. This theoretical framework is local and specific to the context: science decision-making and maternity healthcare.

The GT process consists of some essential components: theoretical sensitivity, purposeful sampling, coding, theoretical memoing, and sorting. The constant-comparison method incorporates these components and involves simultaneous data collection and analysis. The researcher uses an iterative approach to evolve data collection and move the project forward in the direction of theoretical data saturation and theoretical conclusions based on the participants' experiences. GT is unique from other forms of qualitative research because the concepts on which the theory is constructed are derived directly from the data collected (Corbin & Strauss, 2015). Data collection and analysis occur in an ongoing cycle throughout the process to produce a theory or framework.

The main form of data collection I used for this study was semi-structured interviews with expert informants. Expert informants are participants who have the expertise and first-hand knowledge of the experience and phenomena of interest. This project benefits from Habermas's foundational concept of communicative action from the field of sociology (Walseth & Schei,

2011). Habermas' theory claims that a 'lifeworld' perspective is essential and that people reach better insight through language—presenting arguments, justifying statements, and asking and answering questions (Walseth & Schei, 2011). Based on these two foundational assumptions, exploring women's conversations allowed me to gain insight into the patient's lifeworld and understand the impact of science communication and knowledge transfer on power, respect and perceptions of healthcare as many of these social interactions are experienced through communication and conversation.

I analyzed the data employing the constant comparison process whereby data are broken down and compared for similarities and differences. I identified common themes in the data, and each category was developed in terms of its properties and dimensions integrated around a core category (Corbin & Strauss, 2015). The core category and other themes were then used to create the structure of the resultant theoretical framework.

A central limitation to a GT approach is that data analysis often consists of identifying and interpreting common themes; therefore, coding is open to human error and the researcher's bias (McCaslin & Scott, 2003; Richards & Morse, 2013). This limitation was mitigated by using a research team, consisting of my supervisor and the Patient and Family Advisor (PFA, which will be further explained in 3.3.1 SCPOR and Patient and Family Advisors) and myself. Additionally, I tracked all coding decisions, as coding malleability was employed to increase coding validity.

3.2 Literature and Grounded Theory

Though some theorists argue that researchers should maintain a strict 'blank slate' regarding knowledge of existing theories and thought in the field, this is a pervasive misconception (Goulding, 2005). The avoidance of all knowledge related to the topic at hand is practically impossible for researchers and literature can have advantages for analysis. Therefore, I use literature at the outset of this project and throughout data collection and analysis.

The use of literature in GT is vital for two reasons: it is used to inform the emergent theory in the study and provides thematic credibility. Therefore, the theoretical output needs to be situated within the literature of the field to provide thematic credibility. Researchers urge the collection of literature from the beginning of a project to aid research through making comparisons, enhancing sensitivity, providing descriptive materials, supplying questions for initial interviews, stimulating analytic questions and confirming findings (Goulding, 2005; Corbin & Strauss, 2015). I collected literature and used various sources relating to science adaptation, wholeness, communication, pregnancy and related culture and medical research to compare and bolster findings.

Prior literature use risks researchers falling into the trap of pre-existing theories and directing the researcher to analyze the data through the lens of prevailing thought in the field. The literature is used to enhance rather than constrain analysis (Corbin & Strauss, 2015). In order to avoid the risks mentioned above, I made use of bracketing, where the researcher can put personal and literature knowledge aside, through memoing and cataloguing of all literature consulted before data collection, so that the research problem and the data can be seen without bias and the researcher can work inductively, creating meaning and understanding from the data itself (Richard & Morse, 2013). This is then set aside as *a priori* research and consulted throughout the process for potential biases.

Post-study, I used the literature review to identify how the findings fit into the field's current schema, further enhancing thematic credibility. My PFA is another point of credibility where results and questions alike were checked for relevance and accuracy in real-world experience. The role of my PFA will be explained further in the section that follows.

3.3 Grounded Theory and Participatory Action Research

3.3.1 SCPOR and Patient and Family Advisors

The Saskatchewan Centre for Patient Oriented Research (SCPOR) is the provincial unit led by the Canadian Institutes of Health Research (CIHR) to build capacity for patient-oriented research. SCPOR supports university students as Trainees in gaining hands-on experience with patient-oriented research. This research was undertaken with the understanding of SCPOR's guidelines and principles. Consequently, this project was patient-oriented and held patients as central pivot points for this project's decisions and steps. Patients, their families and caregivers (known as Patient and Family Advisors or PFAs) are partners on this project, and research questions were asked to improve healthcare and the healthcare system.

My PFA is a new mom, and at the time of the beginning of my study, her child was only a few months old. She was on maternity leave from her job as an early years elementary school teacher. She holds Bachelor's degrees in Education and English, and she is completing her Master of Education. Her husband is an accountant; they have two dogs and a beautiful one-year-old daughter. My PFA is training to become a doula and is passionate about maternal health. She is well-read and embedded in the maternity care of her community. She has a strong peer network of new moms and a relevant background through which she viewed our research study.

My PFA was included as much or as little as she was able; it is understood that there is a spectrum of involvement from PFAs dependent on availability and personal ability and preference. Ideally, a PFA would provide extensive counsel and insight at all levels of this investigation. My PFA was extremely valuable in providing literature and background knowledge of the community. She also connected me with several key participants and supplied valuable insights following several of the interviews. My PFA was able to attend and participate in some of the semi-structured interviews. The research process included my PFA's opinions about design, interview questions, dissemination recommendations, and participant recruitment. Therefore, this project at the outset included some built-in flexibility that accommodated the team member's valued insight when and if the new direction was provided from the PFA. Through early consultation and constant communication, my PFA was able to aid me in my research, including data collection and analysis. We avoided any new direction or detours through forethought and planning.

3.3.2 Participatory Action Research and Community-based Research

As this research was community-based and patient-oriented, it borrowed attributes from the world of participatory action research (PAR). PAR involves participants and researchers working together to understand a problem and fix it. Described as a participatory, PAR is a democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes (Baum, MacDougall, & Smith, 2006). It is a systematic process that seeks knowledge for social action and promotes change in individual behaviours; it is often used to

understand and critique power relations within a community of interest (Baum et al., 2006). PAR in marketing is aimed at consumer welfare. It involves consumers at all stages of the research process, ensuring that research questions and direction are rooted in the community's practical problems. The consumers are also co-creators of the research process and knowledge. This research design seeks to provide immediate and workable solutions to the concerns of the participants. PAR aims to develop the capacity and capability of the target consumers and contribute to knowledge generation and theory development (Baum et al., 2006). As such, PAR overlaps nicely with GT research methods.

3.4 Setting and Participants

The target population for this study were individuals who have had a child within the last year and used an OB or GP as part of their care team. The stipulation for using 'western' medical practitioners as opposed to a midwife or other HCP ensured that the HCP typically relied on medical and surgical interventions (Guliani, 2015) and was, therefore, more likely to use medically complex and science-based subject matter. Additionally, GPs and OBs are the most common form of maternity care. Participants consisted of recent maternity care patients, who met additional sampling criteria. The recruited participants all (a) spoke English, (b) provided informed consent, (c) were adults of 18 years or older, (d) Canadian citizens or permanent residents, (e) gave birth in the past year and, (f) used a GP or OB. These criteria provided a baseline for a homogenous sample characterized by an assumed level of communication abilities in English, a consistent age-range, and similar experience with HCPs. Based on previous guidelines, sampling ceased at 12 participants (Aldiabat & Le Navenec, 2018).

Recruitment proved to be relatively easy, and theoretical saturation was achieved within twelve total participants. The central and overarching themes of the data were theoretically saturated. Some outlying stories and some of the nuanced data would require expanding the current scope of research, which was not completely saturated. However, given time constraints, additional data was not collected to thoroughly saturate and incorporate outliers.

Participants were recruited through snowball sampling. Snowball and purposeful sampling were conducted following all ethical guidelines. Purposeful sampling is a tool for increased methodological rigour. I predetermined my sampling criteria and recruited based on those characteristics. Obtaining expert informants indicates that participants know the required information and are willing to reflect on the phenomena of interest (Richards & Morse, 2013). Therefore, this study has population and informant credibility.

My PFA provided some initial participants. Primary participants were asked to provide potential participants with the contact information of this researcher. In this way, the research team was contacted by potential participants. Social and professional networks were utilized to distribute study information. The primary researchers did not contact potential participants directly, to ensure confidentiality and free choice. Initial contact was made by email (see Appendix C for a sample email). If participants chose to engage with the researchers in the study, and they were determined to meet additional inclusion requirements, they were admitted to the study and interviewed. I took resources to each interview to limit the potential for discomfort and ensure the interview process positively impacted the participants. From the SHA, I provided information regarding postpartum health and depression, helping my participants stay informed and healthy.

3.4.1 Demographic Information

Table 3.1 Participant Demographics

| Participant Pseudonym | Age | Occupation | Number of Children | Doula |
|-----------------------|-----|----------------------------|--------------------|-------|
| Harriet | 35 | Teacher | 2 | |
| Maude | 38 | Governance officer | 2 | |
| Leone | 34 | Social Work | 2 | Yes |
| Carrie | 37 | Architectural Technologist | 1 | Yes |
| Frances | 28 | Legal Clerk | 1 | |
| Roberta | 35 | Social Work | 3 | |
| Jennie | 35 | Marketing | 2 | |
| Alice | 36 | Teacher | 3 | |
| Jeanne | 30 | Professional Accountant | 3 (twins) | |
| Irene | 29 | Teacher | 1 | |
| Elsie | 30 | Environmental Engineer | 1 | |
| Donna | 32 | Teacher | 2 | |

Table 3.1 indicates the basic demographic information of my participants. All participants are married (to men) and used a combination of GPs and OBs. They all held post-secondary or advanced (master's) degrees. However, the strength of GT methods is a vibrant and in-depth look at participant experiences. My participants on the surface are greatly homogenous, yet their experiences were diverse.

One of the central emergent themes of my research is wholeness, which at its base level, reflects that each participant is more than the sum of their—demographic—parts. Therefore, a more well-rounded look at the experience of each participant is essential. What follows are the collected adjectives of each woman as she was describing her experience of pregnancy overall. I found that each woman had a varied experience with pregnancy; there were positive *and* negative aspects of each pregnancy and birth journey—italics denoting direct quotes from transcripts.

Harriet, a mother of two boys, found pregnancy to be *amazing*. But she also experienced some *challenges* in the form of medical diagnoses that she found to be *random, unexpected, problematic*, and caught her up in a *whirlwind*. Overall, Harriet remained *positive* despite her *worry* and *anticipation*. She characterized her care as *good* and *comfortable*. Her birthing experience took a turn away from the positive toward *immediate, intense, horrible* experience that *sucks*. Overall, she commented that it was *not great*. She did find it odd—*funny*, that her care team missed some detectable medical issues in her son before he was born. Consequently, she had a post-natal experience with her newborn at the hospital, she found that care to be *next level good*, and *smooth*.

Maude, a mother of two, a boy and a girl, found pregnancy to be an *interesting* experience and used words like *worse, stronger, difficult, awesome, fast, rushed, blur, shocked, horrible, kind of nice, unsettling*, and *easy*. She like the *latitude* her doctor provided and that he *armed* her with new information. Maude also used phrases like *fight for what you want*, and *life*

and death when talking about her experience with the healthcare system and birthing, respectively.

Leone, a mother to two boys, found becoming a mother *interesting*. Overall her pregnancies were *healthy, challenging, hard*, and she was *tired* and living in *survival* mode. Other words she used included *normal, standard, fine, chaotic, emotional* and at times, *checked-out*. Leone felt that *they were coming at [her]*, and she was *struggling*; had *sacrifices*; it was *difficult, immense, hunky dory, tough, crazy* and *lucky*. Saying that it all went *as well as it could have*. Of her second birthing experience she described that *he just came, and life was good*, that *he just moved so beautifully*. Leone liked *sinking her teeth into* any information she could get her hands on.

Carrie, a new mother to a baby boy, described her pregnancy experience as *horrible, crazy, fairly good, silly, dumb, normal, frustrating, scary*, and ended up *hating the [birthing] experience*. Carrie also received some test results during her pregnancy, an experience which cause her to do into *panic mode*; she could not think of anything *worse* and did not want them to *sugar coat* the news. She felt this was *a little bit of a challenge*, when it was *thrown at her*. Carrie felt there were *fairly big things*, that she did not want to *stumble through*; she was *tripping over [her] feet trying to figure it out*. She had doctors that were not *new to the game*, who were *talking her ear off*, and *rushing*, and she tried not to be *chatting, or hemming or hawing* with her care team. The birthing experience she found difficult to recall because she was *kind of out of it* and she thought that *it is what it is*. Of new motherhood, Carrie said, *he's tired and I'm tired and everything's happening*.

Frances, a mother to one boy, found pregnancy to be *positive, lovely, easy*, and *overwhelming*. She found giving birth to be a *wacky* experience and expressed her experience of birthing as *“what the fuck.” Childbirth is bullshit*; it was also *really bad, no nonsense, weird, hated it, sucked, traumatic, painful, excruciating, hell, hard, shitty, and stressful*. The epidural was *great*, but the rest was *fucking terrible*. She went on to say that birth and breastfeeding was *a whole different bunch of bullshit, it was not fun*. She was *surprised* that she had *hard feelings* afterwards. Frances thought that her overall experience was the *worst*, and it remains a *super visceral* memory for her.

Roberta, mother to three children, described her experience with pregnancy as *easy, straightforward, happy, loved, relaxed, good, fast, great, and positive*. It was also *frustrating, crazy, tiring, quick, brief, fleeting, annoying, vulnerable, exhausting, uneasy, awful, scary, terrifying, horrible, a whirlwind, and a blur*. In the hospital Roberta felt like *“whoa, back off”* to her nurses, but she also had a nurse who was *next level chipper* which she liked. She found a lot of her experience with healthcare teams to be *black and white*. And she felt at one point that she needed her care team to *do something!* Roberta also did not like when she had to *waddle around* the hospital room.

Jennie, who is a mother of two, said that pregnancy was *amazing, loved it, not too bad, lucky, standard, fine, a breeze, and like nothing*. It was also *not pleasant, weird, confusing, shocked, looming, intense, spiraling, traumatic, crazy, bizarre, mayhem, not fun, frustrating, and overwhelming*. Jennie also said that she *can't complain* about her care, and that it was *‘quote-unquote normal.’* Of the complications she experienced during childbirth, she said it was *something to rip you right open, something to power through*. She was *losing [her] mind*, and in

full-on, like break-down mode. It was not something you want to do, and it pushed her over the edge. And yet, she has healthy babies, which at the end of the day, that's a win.

Alice, mother to three children, found pregnancy to be easy, magical, amazing, fortunate, confident, and a physical-mental game. However, it was also nasty, crappy, traumatizing, shitty, freaking out, hush-hush, down and dirty, nitty-gritty, hardcore, crazy, overwhelming, hard, struggle, frustrating, pushy, weird and intense. When going into labour, Alice told the nurses that she was not making this shit up and said that it was the real thing. She felt empowered with being able to push through the crap of childbirth.

Jeanne is a mother of three, described her experience as *uncomplicated, great*, and her labour happened *suddenly, quick and fast*. There were also times that she felt *disheartened and overwhelmed*. Jeanne also used adjectives like *painful, fearful, exposed, blur, helpless, bizarre, emotional* and *vulnerable*. Although she had an overall positive experience, she found having twins *a whole different ballpark*, and she was confronted with *a lot of news* during her experience with pregnancy and childbirth.

Irene is a first-time mother, who found her overall experience to be *terrible, bad, intense, a nightmare, painful, miserable, sick, not happy, strain, hard, isolating, constrained, obscure, difficult, a struggle, ultimate, survival, traumatic (mentally, emotionally, and physically), unfortunate, and exhausting*. Positively, Irene used words like *healthy, clear and fortunate*. She also said that pregnancy left her as *a shell of a person*, with a lot of elements that were *hard to suss out and ultimately robbed [her] of a year of [her] life*. She also described childbirth as a *tremendously demanding physical task*.

Elsie, a mother to one baby girl, described pregnancy as *good, lovely, fast, rare, happy, an ideal scenario, incredible, interesting, typical, lucky, positive*, and that she was *equipped to handle it*. However, she also found it *strange, a blur, an obstacle, struggled, freaking out, crazy, uncertainty, fear, hard, super emotional, frustrating, weird, and funny*.

Donna, a mother of two, found her pregnancy experience to be *fortunate, happy, uncomplicated, and lucky*. But she also used descriptors like *not glamorous, awful, painful, gory, overwhelming, busy, odd, awkward, and bad*. She felt *worried, over-anxious, blind-sided, and pushed*. Overall Donna said that childbirth is a *big thing*, and *it wasn't that bad*.

3.5 Interview Structure

I collected data during semi-structured interviews in which I asked participants about their interactions with HCPs and the technical terminology used. I probed participants about their perceptions regarding power and respect in these relationships and how they are impacted by medical science. Importantly, they were asked about how they navigated scientific information in conversation with HCPs and their decision-making processes. Informed consent was obtained before starting each interview.

I conducted interviews at a location of their choosing. Therefore, my study was conducted in Saskatoon and Regina in Saskatchewan, Canada; this ensured that the researcher could accommodate meeting participants at their homes, local coffee shops, or university campus. Eleven interviews were face-to-face; one was over the phone. The phone interview was undertaken as I had contracted a cold; the participant decided a phone conversation would be better than a different date and time. My supervisor was present for one interview, and my PFA was present at five interviews.

Each interview lasted approximately an hour. I conducted two mock interviews (with my PFA and a faculty friend) before participant interviews to ensure confidence in my interviewing skills. The interview guide was pre-set and followed loosely, with each participant leading the conversation. Semi-structured interviews allowed me to maintain some consistency with the concepts covered in each interview (Corbin & Strauss, 2015). After the guide's questions were suitably addressed, I invited participants to add anything else to the interview that they felt was relevant or important to the discussion. I used probes to clarify specific points and delve further into certain topics (Corbin & Strauss, 2015). Following the first couple of interviews, I reviewed the interview guide in consultation with my PFA and supervisor. The review tailored questions and adjusted probes to target the conversations of interest (see Appendix D for Interview Guide). No substantial changes were made, but notes added to be more explicit in my questioning. Eventually, through this iterative, constant-comparative method, some questions were no longer asked (like questions about jargon), which provided time to probe the decision-making drivers for patients and the function of science therein. I recorded interviews for transcription purposes.

3.6 Transcription and Coding

3.6.1 Transcription

All interviews were recorded and then transcribed using Express Scribe transcription software. As I conducted interviews, the data were transcribed and analyzed, leading to adjustments in interviewing techniques used as well. Manual transcription ensured that I was significantly familiar with the data throughout the process. Transcription aided in the process of line-by-line analysis and constant comparison methods. Data were analyzed using open coding. I used this method to discover new ideas, where codes were created by phrases and passages from the participants (Richards & Morse, 2013). Each code helped explore and illuminate other participants' data; in this iterative process, new codes are created as participants are interviewed, adding to the wealth of knowledge previously identified and retroactively applied. Coding continued until theoretical saturation of the main themes had occurred. Saturation occurred around participant number ten, and two additional participants were recruited to confirm saturation.

Theoretical saturation is determined when no new categories or relevant themes emerge (Corbin & Strauss, 2015). Therefore, saturation occurred when subsequent interviews no longer brought to light new information; they began repeating and reaffirming previously found themes. Theoretical saturation, according to Corbin and Strauss (2015), goes further to say that the established themes are thoroughly explored. I attempted to fill all possible gaps to produce in-depth explanations of each theme or category.

To determine that theoretical saturation had occurred and to achieve saturation quickly, I followed the guidelines put in place by Aldiabat and Le Navence (2018). They suggest that saturation can be determined based on the researchers' subjectivity and intuition (Corbin & Strauss, 2015; Aldiabat & Le Navence, 2018). However, as a novice grounded theorist, this proved challenging. In particular, as each birth story and experience was unique, it was often difficult to determine when and if the underlying themes were repeating based off of superficial analysis.

Aldiabat and Le Navence (2018) suggest seeking guidance from an expert grounded theorist; therefore, I included such experts on my research team in the form of a supervisor. Factors like narrowing the scope, the level of complexity of the research question, having a homogeneous sample, expertise of the researcher, understanding the philosophical underpinnings of the method, using a guiding theoretical framework, using sensitizing concepts, resources, and the audience of the thesis facilitated data saturation (Aldiabat & Le Navence, 2018). Everything in my power was done to facilitate and provide reliable GT methods.

3.6.2 Coding

I used software called NVivo to aid in the early stages of the coding process. It allowed for the identification of broad, overarching themes and identifying essential themes for micro- and in-depth analysis. The initial analysis was open, free and generative. My data analysis began following the transcription of the first interview and continued throughout the data collection process. I labelled similar incidents as categories until saturation has occurred. As I analyzed further information, the previous data often took on new meaning and significance. This process led to my thematic coding, increasing the degree of abstraction from the data. At this point, I found it helpful to resort to non-technology-based coding. I printed all 255 pages of transcribed data and used highlighters and colour-coded sticky notes to conduct further line-by-line microanalysis, categorization and abstraction.

This type of coding generated themes in overwhelming numbers, pulling labels directly from the data. Having flagged the critical passages, and having an overall picture of my data, I continued coding as interviews were transcribed, and I got into the habit of memoing.

Memoing was an important step in my analysis. I used memos, as Corbin & Strauss (2015) suggest, to enable myself to keep a record of thought changes over time and to see the progress of analysis. It also helped me to work with my research team. My PFA and supervisor memoed select interviews, and we used these as discussion points, assumption checks, and brainstorming ideas in our mutual analytic process. Memos varied in length and breadth. All memos were then used to link to the conceptual features of the rest of the analysis process. The memos also helped in abstraction, forcing me to work with concepts and ideas rather than raw data (Corbin & Strauss, 2015). Assumptions were often checked through open discussion with my research team, and questioning the data was an essential analytic tool.

A central tenant of GT is sensitivity. Theoretical sensitivity is vital in achieving abstraction and is used to aid in identifying a core category through observation of linkages connecting categories (Corbin & Strauss, 2015). Sensitivity meant having insight and being tuned into and able to pick up on relevant issues, events and anecdotes during the collection and analysis of data. As expert grounded theorists suggest, the experience can enhance sensitivity. I have no experience in the arena of pregnancy and birth, therefore, utilizing my PFA as a resource in the analysis process and data collection increased sensitivity, and I was able to build my sensitivity through observation of her.

Through the analysis process, it became clear that terminology and jargon, which I initially assumed would be an important barrier to effective science communication, did not prove to be the barrier to communication and relationships initially thought. Themes I expected arose, like science, power and respect. Additional themes like control, expectations, choices, and policies/procedures began to emerge from the data. Science featured heavily, but not in the way

it was expected. Science communication seemed to serve a much-abstracted function in the relationship dynamics and the evaluations of care for each participant. Through the abstraction process, themes like respect, power and empowerment, priorities and expectations seemed to lead to *wholeness* as a central goal for every participant (this concept will be explained further in Chapter 4: Findings and Analysis).

The primary category—science—was the basis for the theoretical framework, and wholeness (the emergent category) became a significant outcome of how patients interacted with science. The data was searched for stages and dimensions of science to arrange into categories as the basis for a theoretical framework grounded in data, as Richards and Morse (2013) suggest. The analysis led to a three-tiered framework for the antecedents, experience and outcomes of the inclusion of science-based experiences and how these impact dynamics in patient-provider relationships. Included in the theoretical outcomes were the driving factors for patient behaviours and achievability of affective outcomes, namely PCC, wholeness and satisfaction.

After identifying science and wholeness as my core, novel categories, *axial coding* was necessary. I went back to my data and looked at my interviews as relevant to science or wholeness. I identified several sub-themes through this process, and I began diagramming the themes and their valence concerning science. In my analysis of the navigation of science-based conversations, it was necessary to note the elements that were positively oriented (or helpful) for patients and the negatively oriented things—hindering their progress and motivations for exploring science in maternity care. This was an important intermediate step for my analysis and was used comparatively for creating and refining the theoretical framework. These initial diagrams and categorizations let me further abstract the data and see patients and HCPs, as well as science and wholeness, holistically and to understand how these variables work together when participants were in a decision-making context.

3.7 Analysis and Procedures

Throughout this process of coding and analysis, constant comparisons were being made. I revisited earlier transcripts, memos, annotations, and diagrams. Iteratively, I was diagramming, frame-working, and building charts and relationships between the elements from the data as they related to patients and their decision-making processes. Several strategies were used to analyze the data according to Corbin and Strauss's (2015) recommendations: questioning, making comparisons, thinking about the various meanings of a word, making use of life experience, flagging, looking at language use, emotionally charged words, words that indicate time, thinking in terms of metaphors and similes, looking for contrasting or negative cases, visual art, and diagramming. I made every effort to avoid early conclusions and to explore all possibilities.

From the coding and analysis, there were significant themes that evolved out of the data. Primary codes were science, language, respect and power. Emergent codes included were emotional words, teamwork, priorities, peer and female support, persuasion and pressure, questions, expectations, choices and options, control, vulnerability, and empowerment. Through comparison of these themes, at an abstracted level, they are not as distinct from each other as I initially thought. Some categories could be combined. For example, through returning to my data and looking holistically, I concluded that at the root of the stories concerning things like control or conversations that included questioning from both the patient and the HCP, both were about being partners. Similarly, several elements of other codes were abstracted into a new code. Yet,

under the umbrella term 'wholeness,' there was abundant nuance to be captured, so sub-categories were developed and refined.

Visual representations of the data were key toward the end of the analysis (see Appendix E for earlier visual analysis). Visualization allowed for feedback and insights from other members of the research team. It helped in the vetting process of ensuring that the theoretical framework was emergent from the data and not the literature. Conceptual visualization of the data helped to raise my thinking beyond the level of description (Corbin & Strauss, 2015). Diagrams also forced me to strip away detail that was obscuring the overall picture.

Category names and conceptual labelling evolved out of the data itself or through additional literature. All names began tentatively and were quoted directly out of the data. As the analysis progressed, names have changed and evolved to encompass more broad definitions of concepts. During this process, I expanded my literature collection, searching for concepts connected to science, knowledge construction, communication, decision-making and whole-person (holistic) care. This exploration process assisted in allowing novel concepts to prevail from the data, and to continue to broaden my scope. It also helped me frame concepts and group items under umbrella terms found in either the data itself or through literature.

Finally, I was able to apply my framework directly back to the interviews with participants. Applying details back to the framework assisted in completing the theoretical outcome through the identification of overarching categories of experience. Returning to my raw data allowed me to validate the proposed theoretical framework.

All categories were checked to ensure they were distinct from one another and internally consistent. I made sure that, for example, agency was not so distinct that it needed to be removed from the antecedents, or that it was too involved in relationship factors. This process was applied to all themes with the final set of categories: individual factors, individual agency, relationship factors, decision-making, success metrics, policies and procedures, patient-centred care, wholeness and satisfaction. Some categories have sub-elements that contribute to their definition or impact with science—leading to the development of the theoretical framework.

3.8 Knowledge Dissemination

This topic of study lends itself in a unique way to accessing a diverse group of people interested in the results of this study. I intend to share results and findings via academic journals and conferences to increase academic awareness and inspire future research. It would also be beneficial to meet with or provide continued educational opportunities to healthcare professionals. It follows that results and outcomes can have practical implications for physicians, care providers, and the marketing community.

My research has the power to impact patients as well. It might be prudent to put results in waiting rooms in GP and OB offices where the targeted population is likely to engage with the findings. In consultation with my PFA and considering the current world events of a global pandemic, an infographic will be the best way to reach my participants. As they are all mothers to young children, a low commitment option for them would be ideal. As such, academics, practitioners, my participants and the general public will be able to reap the benefits of this research project.

3.9 Ethics

All human ethical considerations were taken into account, following the protocols of the University of Saskatchewan Human Research Ethics Policy (University of Saskatchewan, 2018) and the TCPS2 (2014). This study was assessed as low risk. The focus of interviews relied on participants' decision-making processes and conversational experiences with HCPs. However, there were instances of discomfort. In part, this risk of discomfort on behalf of the participant was limited through the self-selection process. If individuals were unwilling to explore this subject matter, they had the option of not presenting themselves for inclusion in the study. Participants also reserved the right to refuse to answer any questions with which they are uncomfortable. As opportunities for discomfort arose more often in interviews, I made sure that participants were aware of their rights to refuse, and that we were 'friendly ears' and 'safe ears,' for any experience the participant wanted to share relevant to the research.

Participants' confidentiality was maintained using pseudonyms, and no identifying information was recorded. Pseudonyms were chosen based on famous Canadian female scientists, and trailblazers. These pseudonyms turned out to be a source of rapport building, as many participants were interested in the outcomes of the research and the names they would be assigned. Participants were fully informed about the purposes and aims of the study at all times. They were also invited to ask questions of their own at any time.

Informed consent forms were signed, and participants were allowed to withdraw at any time. It was made known to the participants that they were welcome to refrain from answering any question. Participants were not compelled to divulge any personal or medical information they were not comfortable sharing. Following the interview, participants were allowed to check the transcription for inaccuracies. Only two participants opted to receive their transcripts, and no inaccuracies were reported.

Participants were met at a location comfortable to them, such as their home or coffee shop. Therefore, most participants did not incur travel costs. Participants were quickly recruited via social and professional circles, and they were more than willing to engage in research due to the benign nature of the subject matter. A small gift was used in lieu of an honorarium in the form of a handwritten 'Thank You' note and a box of chocolates.

3.10 Framework Integration

The early stages of analysis underscored science as a significant factor in the outcomes and decision-making for participants. The positive and negative orientations of the elements and codes identified for patients were important classifiers for understanding the data. This idea of a barrier to an 'ideal' experience with the healthcare system lead to the categories of barriers and aides—later renamed Helping and Hindering factors (please see Appendix E for Helping and Hindering table). These two categorizations were broadly encompassing of all the themes coded.

The framework was developed through extensive memoing and diagramming. The aforementioned themes and categories were integrated by a variety of other re-ordering and recombining activities. Re-organization helped me to visualize the relationships between the concepts as the participants perceived them. The guiding idea at this stage of the process was whether each concept helped or hindered the patients' relationships with HCPs resulting in a preliminary model of the relationship between science and the other categories (see Appendix E for Early Diagram).

Through collaboration with my supervisor and extended memoing, wholeness emerged as a driving motivation for all participants, therefore further reordering the diagram. This intermediate diagram (Appendix E) conceptualized the HCP and patient as moving through the process in a decision-making process. Looking at the concepts, more chronologically seemed to capture the essence of the data better. Visualizing science as a barrier scanned back onto the data. However, there were elements of each concept that facilitated the achievement of patients' navigation techniques. Ergo, the theorized diagram was not capturing all aspects of my data. This resulted in a roadblock in the framework integration process.

Re-engaging with the details and nuances of my data was important at this stage. Through constant comparison, continued diagramming, and collaboration with my supervisor, I found that the initial framework visualization was approaching over-interpretation. Still, some factors did not fit with my working framework. The connections and feedbacks were numerous and complex. My supervisor and I took a step back from the data. Everything I knew about the categories and themes I had developed allowed for clarification and distillation of concepts and categories and created a simplified framework. After re-grouping the categories into simple antecedents, interactions with science and outcomes, the final theoretical framework began to take shape to better represent the experience of my participants. The overarching categories were then further broken down, and some of the categories were more efficiently allocated to these sub-headings. After returning to the data, I verified that my framework functioned in all cases, that there were no outliers within my data, and that my framework captured the overall story from my patients. This theoretical framework (Figure 4.1) will be further explained in the section to follow

Chapter 4: Analysis and Findings

4.1 Theoretical Framework Overview

This section describes a new theoretical framework of the experience of science in a maternity care context. This theoretical framework aims to identify and explain the factors which influence antecedents, experiences and outcomes of the experience of science in decision-making. In-depth results from twelve interviews from women with first-hand experience were used to identify their desires and motivations for engaging science throughout their care experience.

| A. Antecedents to the Science Experience | B. Science Experience | C. Outcomes of the Science Experience |
|---|---|---|
| <p>Three factors that determine the saliency of science:</p> <div data-bbox="251 804 570 919"> 1. Individual Factors <ol style="list-style-type: none"> 1. Social Support 2. Knowledge and Experience 3. Interest </div> <div data-bbox="251 951 570 1108"> 2. Individual Agency <ol style="list-style-type: none"> 1. Social rules 2. Patient-mindset 3. Pain 4. Effort 5. Participation </div> <div data-bbox="251 1140 570 1297"> 3. Relationship Factors <ol style="list-style-type: none"> 1. Information Flow 2. Reciprocity 3. Power and Equality 4. Control 5. Trust </div> | <p>Three primary areas where the patient experiences science:</p> <div data-bbox="654 804 972 840"> 1. Decision-Making </div> <div data-bbox="654 972 972 1008"> 2. Success Metrics </div> <div data-bbox="654 1140 972 1176"> 3. Policies and Procedures </div> | <p>Three outcomes of the patient experience that are impacted by science:</p> <div data-bbox="1057 804 1375 919"> 1. Patient-Centered Care <ol style="list-style-type: none"> 1. Personalized/Individualized 2. Access to supports 3. Science Knowledge </div> <div data-bbox="1057 951 1375 1098"> 2. Wholeness <ol style="list-style-type: none"> 1. Having Access to a Consistent and Preferred Care Team 2. Being Listened To 3. Practicing Gratitude </div> <div data-bbox="1057 1140 1375 1255"> 3. Satisfaction <ol style="list-style-type: none"> 1. Expectations must be realistic 2. Expectations must be met or exceeded </div> |

Figure 4.1 Theoretical Framework of the Experience of Science

My theoretical framework (Figure 4.1) describes how science impacts the patient experience of maternity care in three distinct categories. Each section is subject to variability; however I found clear patterns of the (a) antecedents to the science experience, (b) the science experience and (c) the outcomes of the science experience. The enumeration of the categories within the overhead sections does not explain importance; instead, they provide clarity for discussion purposes in the rest of the chapter.

This framework is meant to be understood as flexible, and categories can be occupied by each participant/patient differently. The relationships between each category are not strictly linear, and there is the potential for feedback loops and recursive action from one phase of the framework to another. The nonlinearity is partly due to the complexity of the situation and factors outside science impacting women in this decision-making experience, which is outside

the scope of this study. Depending on the unique combination and salience of the different antecedent variables (see 4.2 A. Antecedents to the Science Experience) for each of my participants, their experiences of science were different. My participants had diverse experiences with the three areas in which the participants encountered science (see 4.3 B. Science Experience). To varying degrees, my participants were satisfied with their care, and consequently received and pursued varying degrees of PCC and wholeness (see 4.4 C. Outcomes of the Science Experience). In part, this flexibility is also due to the individual variability, and unstable personality and identity traits affecting decisions.

Personality and identity are changing during pregnancy; therefore, my participants were not internally consistent. I had more than one participant comment that becoming a mother was more than just interesting: it was bizarre, crazy, and transformative. This unique experience changes a woman's identity. The scope of this identity shift is outside the bounds of the current study, but it explains some of the framework's fluidity. Many mothers commented that their decisions were different because they were no longer individual decisions. New mothers and mothers-to-be often took into account their children's lives and spouses in making decisions. Other women commented that becoming a mother had changed how she viewed and valued science (*Harriet, Frances*). Others had said that she would act out of character when it came to advocating for her children (*Maude*).

This transformative experience for personality and identity suggests that pregnancy is a time when women are re-creating themselves. Patients' philosophies about their bodies, health, and their families' health may be evolving throughout the maternity care journey. This further solidifies the need for inherent framework flexibility for each woman and each decision. The

decision, the conditions, the person, and the identity are all in flux. Therefore the framework can fluctuate as well.



Figure 4.2 Antecedents to the Science Experience

4.2 A. Antecedents to the Science Experience

The first set of patterns derived from the data regarding how women navigate science during their care were the antecedents. The first section, (a) antecedents of the science experience, describes three factors that influence the saliency of science. These factors enable individuals to perceive science more readily or as more relevant to their care experience. The noticeability of science is made up of three factors (1) individual factors, (2) individual agency, and (3) relationship factors. These three factors are broken down into components, found in the data. Each of these factors is a precursor to the science experience. These pre-existing factors can determine how patients engage with science.

4.2.1 Individual Factors

1. Social Support. The first individual factor that impacted how women perceived science is social

support. I found social support in the bonds my participants had with their friends, family and peers. *All* of my participants had extensive networks of peers—women in their age cohort—who were experiencing pregnancy concurrently. They were able to discuss the joys and challenges that accompany a journey through pregnancy and birth. The advice, narratives, and expertise passed among women about the types of information they were about to encounter included science knowledge, and how to navigate science when it became salient. Shared knowledge and experience were found to be reassuring and fortifying for women.

I have a lot of friends who have been going through pregnancy, having babies. And I thought, I can maybe ask them if I need to. (Donna)

Additionally, my participants were prepared by their social support to be advocates for themselves and be knowledgeable about their rights as patients (*Harriet, Maude, Carrie, Roberta, Jennie, Alice*). Social supports made up for the aspects of care that were not found in their relationships with HCPs. This level of support—the social, mental and emotional—was instrumental for shaping expectations of care and giving patients outlets for the entire breadth of their experiences with maternity care and science.

2. Knowledge and Experience. The second individual factor that impacts women’s perceptions of science is knowledge. Participants can receive knowledge through experience, social supports or traditional means (education, literature, experts, evidence, research). Science knowledge is an individual factor that plays a part in helping patients to receive the care they want. Previous research has shown that knowledge empowers patients to get involved with their care (Ben Ayed & El Aoud, 2017). My participants similarly expressed that knowing enabled them to understand more quickly, ask intelligent questions, and advocate for themselves. Knowledge allows patients to engage with science more readily when it arises.

My participants indicated that knowledge of the science behind decisions and how science is interpreted/enacted helped them navigate science. It helped patients to feel confident and trust in the decisions they were making with the HCP. *Harriet* and *Elsie* had to make decisions during pregnancy:

They tell you what’s wrong and then kind of all the research and I found they always did that, telling me about the research too. And your--the chances [...] of having a perfectly healthy baby are 99.8 as opposed to something bad happening are like point eight, or two percent or three percent or whatever they always like use the positive version. So, I felt that also made me probably more positive about the experience. (Harriet)

So, understanding why certain decisions are, sort of made and all that, makes—yeah—makes a difference. (Elsie)

This knowledge can also help them make decisions independent of their HCP. Independence became necessary if the health philosophies of the HCP did not coincide with the patient’s philosophies. If the science is understood, then patients were able to make decisions with less effort. Having a personal reserve of information can free a patient from influence.

Experience included first-hand experience like previous pregnancies and birth or assisting someone else in giving birth. It can also be a second-hand experience, from peers, educators, or HCPs. Shared experience from friends and loved ones also became useful for my participants for judging their own experiences, comparing and anticipating their care. Experience is something both the patient and the HCP can rely on and trust. First-hand experience can be interpreted as knowledge of yourself. *Roberta* expressed that having experienced pregnancy and labour enabled her to have confidence in expressing her needs to HCPs; she knew her body better and was able to express what she was physically experiencing. *Irene* and *Alice* also found the experience of their HCP, and prenatal instructor to rely on, respectively:

I feel like in those situations as a patient, it's—that's a big decision to make when you really have very little information and it was nice to have a professional with a degree and a ton of experience with this to say like, this is what I would do with all of the information that I have. (Irene)

I think her experience. She's been with a lot of mom's and a lot of babies, and she's a grandmother, right? [...] So she's—she's delivered her own babies. (Alice)

3. Interest. Interest is the final individual factor that impacts the saliency of science. The state of wanting to know or learn something ensures that my participants engaged with science when it was presented to them. Not all of my participants had a genuine interest in science, though some did. Some participants were interested in learning generally, and most were interested in gaining knowledge to be able to anticipate and form expectations for their care and health outcomes (*Harriet*). *Irene* and *Elsie* (and others) were interested in the opportunity to read and learn:

Our personalities are like, we're big readers. Like both for pleasure but also professionally. (Irene)

It's interesting right, like, I feel like that's part of it too, is you're learning something as well, which is sort of nice. (Elsie)

Interest was observed behaviourally in my participants attending prenatal classes, reading additional materials, and asking questions during doctor visits. Some of my participants also had others in their lives engaged with science, such as peers and family members who were nurses, doctors, or paramedics. Additionally, spouses who were “science-minded” helped my participants engage with science, and more easily perceive the science involved in their care.

My husband is so science based, and like that's what he wants to know about. Like what is actually happening in my body, to my body and like why and what might happen. Like for me it was just like more like, the—is everything going to be ok. (Harriet)

4.2.2 Individual Agency

Individual agency is the second antecedent to the science experience. Individual agency is the control exerted by a patient at an individual level in a relationship context. As found in my data, several factors impact my participants' ability to feel like agents in their care. These factors include (1) social rules, (2) patient-mindset, (3) pain, (4) effort, and (5) participation.

Participants wanted a sense of control over their healthcare, which is not surprising given what we know about self-determination. Self-determination theory suggests that both internally and externally motivating factors push people to achieve three basic needs: autonomy, competence and relatedness (Martin & Hill, 2012; Patrick & Williams, 2012). My participants wanted to feel equal and have the power within the patient-HCP dyad. Participants with agency felt they could ask questions, make decisions, and effect change in their care. Alice described having agency in her care and felt empowered:

I found, yup, being pregnant empowering, but also delivering even with my—my two boys too, right? Like they were even, probably more empowered with them, but I felt very empowered with my first—just... I don't know. It's just that... yeah. I can do this. And push through the crap. (Alice)

However, some participants did not feel equal. These “unequal” patients felt that this was the right power dynamic for them and their care. At times, participants appreciated the HCP as the authority in the relationship and expected the HCP to be the one with agency.

Now that I think back about it, I just answered questions and she would tell me what to do. Or he would tell me what to do, and I would do it. (Donna)

I think there's a difference between your first and just being like 'I'm putting all of my trust in the nurses and doctors, because I don't know what is happening.' (Roberta)

These two types of agency seekers were not strictly dichotomous. Depending on the instance or decision, each patient desired more or less agency. In other situations, the same patient could feel more comfortable with the HCP in control. Additionally, agencies can be held by patients and HCPs simultaneously. The agency of one does not negate the agency of another.

Overall individual agency impacted participants' comfortability to engage with science in whichever way it became salient. This noticeability of science relied on individual agency because the factors that create agency are firmly rooted in how science interacts within decision-making and healthcare.

1. Social Rules. Social rules is the first factor that contributes to agency and impacts the experience of science. Agency can be constrained by science because of the social norms and codes of behaviour that it creates. The messaging around pregnancy indicates it is a “social rule” that one should be happy to have a baby and be pregnant—it is “a privilege” (*Frances*). Through books, blogs, google, or marketing materials, the prevalent message suggests that pregnancy should be a joyous time in women's lives, and women “can't complain” (*Jennie*). Social norms of this nature can impact how unhappiness in pregnancy is viewed by patients and by others.

I had some participants who found that they did not enjoy the experience of pregnancy. Either due to unrealistic expectations (*Leone, Frances*), extreme side effects (*Irene*), or the social and emotional role they play as an expectant mother (*Irene*), the experience was challenging, frustrating or generally unpleasant (*Leone, Carrie*). Some participants found taking maternity leave from work incredibly isolating and unfulfilling (*Frances, Irene*). Going against social rules effectively isolated women from their peers. When my participants did not feel they could share their honest experience with their support systems, it negatively impacted relationships (*Irene*,

Leone). Relationships affected include patient-HCP relationships, but also social relationships. As previously mentioned, social supports add to women's mental and emotional well-being in maternity and postpartum care. When norms alienate women from each other, it damages satisfaction with care. Social norms can also impact perceptions from HCPs, who will then deliver care differently depending on the expectations set by social norms. These are in opposition to patients expressing their whole experience and advocating for counselling or support. Agency is not able to be present if social expectations constrain patients.

2. Patient-mindset. The patient-mindset hinders patient agency. The patient-mindset is an idea, presented from my participants, that a 'patient' plays a passive role in the patient-HCP relationship and throughout care. They *all* referred to themselves as a patient in relation to their doctors. They conceptualized a 'patient' as someone helpless, needing to be taken care of, and seeking help.

To me a patient is someone who's sick and needs medical attention and medical intervention to get that. I'm not sick. [laughter] yeah so when you think about it, it does seem strange but. (Maude)

So in my head, a patient is—I don't want to say someone who is sick but in that case, [...] when I went in to have my babies, I'm not a sick person I'm just there to have a baby and I'm going there in the event that I need extra help, I'm there. And I'm not far from whatever that extra help might be, right? Um, so it's a bit weird, to think of yourself in that way, and to think of yourself in a place where it's full of sick people. (Roberta)

Then in some ways that term does take away some agency too, right? Um, sort of like, in need of care. Whereas, yeah—even if you are in need of care, you know, you also have options and choices that you get to make as an individual. (Elsie)

A patient defined in the literature is someone who suffers; or a person receiving medical, surgical, or other forms of treatment for a disorder or illness (Kasen, 2002 and Colman, 2016 as cited by Eklund et al., 2019). Eklund et al. (2019) also posit that vulnerability and dependence are characteristics of any patient definition.

This mindset firmly places the patient as unequal and even powerless. This power imbalance restricts agency such that patients are then dependent on the HCP for action, control or care. Patients are not able to act autonomously. My participants indicated that patients do not have agency—but maybe clients do (*Maude, Elsie, Jeanne*). There seemed to be a perception that in a service provider-client relationship, the client intrinsically had more power, or was treated better than a patient would be (*Jeanne*).

3. Pain. Pain is another barrier to agency, and pain—as expected—is a prominent feature in many of my participants' experiences of birth. The nature of the experience of childbirth (not pregnancy generally) meant that women were often unable to speak for themselves or advocate for their care. This position of vulnerability as a patient reduces their capacity to exert power. My participants expressed that pregnancy and birth made them feel vulnerable (*all twelve participants*). They needed others to be an advocate or caregiver. In essence, pain causes women to have to give their agency to others. In labour and delivery, participants were in extreme

amounts of pain, and as a result, they felt they were not able to make good decisions. Pain management (e.g. epidurals, morphine, psychological techniques, etc.) created a state such that the participants/patients are so “out of it” that they felt they could no longer be in charge of their care (*Harriet*). During labour also, patients felt like they needed to focus all of their mental capacity and energy on labouring. They could not focus on anything else; it was often described as a blur or whirlwind (*Harriet, Maude, Roberta, Alice, Jennie*). The power no longer resides with the patient. The pain stopped women from having agency in their experiences, empowering an advocate and focusing on the immediate physical experience.

So then we get there, and again, they're like 'sorry, who are you? Who's your doctor?' And then they ask you, like twelve times, and you're just kind of, like reeling in pain. And you're kinda like 'I—I don't know.' [...] 'I don't know how many times I can tell you.' Yeah. Yeah. So I mean some of that is um, yeah. It's and I feel like it's—it's a hard thing, that side of it. But it can just be frustrating, (Elsie)

I was shocked but at the same time you're trying to manage this pain, and like everything was new so it was just—you're almost like not...aware of everything that's going on. It's just—you need to be like, be focus on what you're doing. (Maude)

4. Effort. The next factor that negatively impacts a patient's ability to have agency is the fact that it requires effort and works on behalf of the patient (and her advocates). Patients worked hard to achieve control and agency, through the effortful assertion of their decision-making power (*Maude, Leone, Alice*). My participants felt that they had to be vigilant if they wanted to maintain agency occupying time and mental capacity. My participants suggested that to control the experience they should remain vigilant against the ‘powerful’ HCPs. *Carrie*, for example, felt the need to be alert:

You know, you go to the—you go to the hospital and the doctors will just start doing stuff. Or the nurses, more so, will start doing stuff. And um, you can tell them no. You can say you don't want this. Or you'd rather not have this or whatever the case is. You don't have to do just because they're say—and they're not always going to explain to you what's happening. So however you prep beforehand, knowing that, ok we're possibly going to get swept up by these nurses who mean well and aren't stupid but are maybe doing things that we don't necessarily want to do. Be on alert.(Carrie)

This vigilance is not conducive to a positive experience of care and is a barrier to agency. The allocation of resources to agency means that patients cannot have available resources to devote to other aspects of the pregnancy and birth experience. Consequently, the saliency of science can be diminished by the effort to possess autonomy in relation to the HCP. Effort was a way that participants expressed their agency and were able to effect change on their outcomes. When effort was acknowledged patients felt their agency was taken into account (*Alice*).

5. Participation. Participation in care and decision-making is the fifth factor of agency that contributes to a patient's experience of science. As discussed in the individual factors, science knowledge helps patients perceive science, but it also enables patients to participate. By participating in conversations around science knowledge, patients feel like agents (*Elsie*). Feeling like part of the process helps patients feel satisfied with their care, aligning with previous

literature on participation in care (Street, 2001). Agency can help satisfaction with yourself, your choices, and your body. It is easier to rationalize and assimilate to the outcomes of the science experience if you are a part of the decision-making process. *Leone* decided not to take a test during her pregnancy:

So... I think I'm fine. And he's like well you're not really in a high-risk category so you're probably—and he like kind of supported me through that. So, I actually never did go, and everything was fine. [...] I feel like I was more of a participant than the doctor was. Yeah. cause I was sort of more so, prompting the questions or prompting the conversations or asking for um, sort of the reasons behind um, some of the practices or some of the um, some of the like, I don't know what to call them, just like their normal practices. Or like some of the interventions I was also asking the question and each appointment I would go in with the list of questions or whatever. (Leone)

And she said but even if you do—like even if I schedule this and they call you that morning, you don't have to go. You can say I don't—I changed my mind, I don't want to go and get it for the next day. Like she told us all of our options. Um, she was very up front about it. And by that point I think she just knew my personality and just knew that I wanted more information. (Carrie)

Participation enables agency, but it can also be detrimental to satisfaction with the healthcare experience if the outcomes are not desirable. *Jennie*, who advocated for her VBAC (vaginal birth after cesarean), had things take a turn for the worse when she needed an emergency c-section. Her decision caused her to feel like she had risked more than she should have. She blamed herself for the bad experience, contributing to her viewing her birth experience as traumatic. Her health outcome will inevitably impact the overall experience of childbirth for *Jennie*, but not her experience of the service she was provided by the HCPs and healthcare system. In this way, *Jennie's* agency allowed her to engage with science as a participatory decision-making tool.

4.2.3 Relationship Factors

Relationship factors are the third set of factors that make up the antecedents to the science experience. These are the factors that create relationships and impact the strength or weakness of a relationship. This research found that strong relationships help patients navigate science positively. The factors that increase the saliency of science and strengthen relationships include (1) information flow, (2) reciprocity, (4) power and equality, (5) control, and (6) trust.

1. Information Flow. Information flow is the first factor that contributes to healthy relationships, and to successful navigation of science. Patients develop a relationship with their HCP while navigating new medical information about pregnancy, birth and healthcare. During this knowledge transfer process, patients were seeking information relevant to their care from their HCP and often from other information sources. Like other research findings (Smets, Deveugele, Kripalani, & Cameron, 2016; Klein & O'Brien, 2018), my participants take full advantage of the multiple sources of information available to them. In a relationship, participants liked verifying information with their own resources. They liked “sinking their teeth” into everything available to them (*Leone*). Access to information is empowering for patients.

However, these multiple sources often were a source of frustration as well, particularly for *Carrie*:

And if a few of them say it—said the same thing then I feel a little bit better than just one source saying this. Um, it's really frustrating when you go, and five different sources say five different things.(Carrie)

Others were frustrated by the lack of consensus between sources (*Carrie, Frances*). Disjointed information flow creates confusion and mistrust of science and sources. A strong relationship relies on the ability of the patient-HCP pair to communicate complex information successfully. The saliency of science and strong relationships rely on HCPs providing information and clarity and direction to their patients. Clarity and direction (navigation tools) were especially necessary in the context of all the other information sources new mothers were using to help them make decisions about their birth preferences.

2. Reciprocity. The next factor that strengthens relationships and enables science to be encountered successfully is a verbal exchange between relationship partners. Science is, in part, communicated via words and conversations. Many of my participants indicated that asking questions was essential to the information flow from the HCP. My participants often felt they had to enter into an encounter with their HCP with questions prepared to ensure they got the information desired (*Carrie, Jeanne*). I found that HCPs did not often offer additional information (*Harriet, Leone, Frances, Carrie, Jennie, Jeanne, Elsie*). Preparing these questions often involved collaboration with external sources. More than one participant indicated that information flow and knowledge were barriers to asking useful questions.

They don't tell you about the things you just don't know, right? (Alice)

I can't ask intelligent questions if someone's just telling me—or giving me scientific language because I have no—no background to be able to ask an intelligent question, back right? So if they can make it more layperson, more relatable and even give additional information, like if you—or a resource to read up on and if they have additional questions after that—which I likely would after doing more research—making follow-up appointments to be able to get those answers and that sort of thing would definitely be helpful too.(Maude)

Participants liked when HCPs asked questions. Participants liked providing answers as well as asking questions. When their HCP asked patients questions, they felt more listened to and more respected (*Elise, Alice*); this was perceived as interest in their health narratives. Questions acknowledge a patient's expertise in her own experience and create a relationship built on respect for shared and equal expertise exchange.

She's just sort of easy to talk to and—I feel like she's always very...she asks you questions, like her first response wasn't like, 'right, let's write you a prescription.' It was like, 'kay tell me about your days and how you're feeling? [...]' It, like, makes you feel like a person. (Elsie)

Strong relationships between patients and HCPs encourage the asking of questions and reciprocal sharing. Strong relationships have questions from the patient to the HCP, and from the

HCP to the patient. According to literature, sharing expertise and health narratives is vital to patient satisfaction and quality care (Epstein & Street, 2007; Levit et al., 2013).

Participants in my study felt more comfortable with HCPs who reciprocated with them. Two-way communication (e.g. questions and answers, social information) is a way to encourage reciprocity, which is vital to a balanced and healthy relationship. Reciprocity, to *Carrie*, meant that her HCP shared personal information as well:

And I also like, I knew that she would talk about her own kids and her own experiences too a little bit. So then I didn't feel like, like I felt a little more comfortable knowing a little bit more about her too. [...] so it just kind interesting getting her to actually share that information and not a lot of doctors would necessarily do that. (Carrie)

Patient-HCP relationships with reciprocity are developed throughout a pregnancy. Patients were disappointed when their HCP was not able to continue their care (due to the structure of the system) into labour and delivery. Though they expressed their quality of care was good with the on-call doctor, most participants indicated that having the OB they had a relationship with would have eased communication and decision-making during labour and delivery and provided reassurance (*Leone, Donna*). Participants expressed that they trusted the HCPs with whom they had spent more time. Strong relationships based on reciprocity are more easily achieved with continuity in care. Reciprocity creates closeness, reassurance, and trust, which can prepare a patient-HCP dyad to engage with science as it arises.

3. Power and Equality. Power and equality, a fundamental lens of my study, was found to be most prevalent in the antecedents' relationship factors. Equal relationship dynamics and power structures influence a patient's receptiveness to science as an extension of her receptiveness to her HCP. Therefore, strong relationships have less social distance and more balanced power. Participants experienced high levels of paternalism, and the amount of technical science presented at a high level was a reliable indicator of power imbalance (*Maude, Frances*). I found the closest connection between patients and people who were more equal to them, meaning that patients connected with care personnel (nurses, technicians, and more) other than the GP or OB (*Harriet, Maude, Frances, Alice*). In science communication literature, this is a known phenomenon between scientists and the public, which is a social distancing by the inherent power of the 'scientist' (Tan & Peruch, 2018). Social distance could be a reflection of the HCP's level of science; GP/OBs having the highest level of science and, therefore, status and power, and nurses and technicians having less science and, therefore, lower status and power.

I felt really like, cared for and I felt more of a connection with the nurses than say, the obstetrician. (Alice)

And then I developed like a really, um, strong relationship actually with the ultrasound technician. [...]and um, she was like, it's just a small little clinic and she was always the same one, and I would see her weekly and—yeah. (Harriet)

Patients appreciated the prioritization of their health and well-being. Priorities will be discussed further in 4.3.2 Success Metrics, but it is instrumental in perceptions of caring and

satisfaction with HCPs. Frequently, the baby's health was prioritized by both the HCP and the patients, giving them power and status in the relationship. Women perceived exemplary care when their health was considered, and when HCPs permitted the women to make decisions for their own well-being, thus creating secure connections between partners. Prioritizing mother's health and lessening power differentials were indicators of strong and equal patient-HCP relationship.

Power imbalances are prevalent in how HCPs and patients communicate with each other. Patients interacted with their HCPs through questions. Questioning their HCP was perceived by the participants as assertiveness—even aggressiveness (*Maude, Leone*). Questions are an essential building block of an equal relationship to share expertise. Questioning, participation, and agency can empower the patient and equalize a patient-HCP relationship through the lens of power. Participation and agency in a conversation can prevent situations like *Donna's*, who did not feel equal to her HCP:

I didn't ask a lot of questions, but then again, I don't really know if the opportunity was given to me to ask the questions. Like the conversation—no there really wasn't a conversation much, it was—was always open for me to ask but I yeah, I don't know what we even would've talked about. (Donna)

Donna felt that her HCP did not bestow her with power. HCPs can allow patients to have autonomy and power. The act of bestowing power can reinforce the traditional power dynamic overall (Simon, 2007).

4. Control. Control is an important factor in the overall experience of decision-making in pregnancy, but it has the biggest implications for the patient-HCP relationship. Strong relationships mitigated the need for control when circumstances were uncontrollable by the patient. Therefore, when science becomes prominent, the patient can trust the HCP to be in control. Trust and control seemed to go hand in hand (see 5. Trust). There seem to be three loci of control: (1) the HCP, (2) the patient/participant, and (3) nature/biology/science/baby/fate-/fortune. Particularly in labour and delivery, participants described nature/biology as the driving factor for unfolding events. As the HCP is the carrier of science and biology, control would default to them. For example, after a patient decided on an intervention-less delivery, having an emergency c-section because of unexplained bleeding, or the baby being in the wrong position (*Jennie, Donna*), nature/biology made interventions necessary. In these cases, control was not an option.

Additionally, science changed the options for patients. For example, tests indicating that the baby measured large caused a patient to change their decision about induction (*Carrie*). Science was seen as the safety net onto which patients could fall when control was taken away. In these cases, patients were grateful to the HCPs for their care and put their faith in the excellent medical interventions at their disposal, strengthening the patient-HCP relationship.

I didn't have a birth plan. I was just like; I want to have a baby safely so if that means interventions let's do it. (Frances)

They, like, show you how to nurse and make sure you're doing it right.' And that was—I was terrified of being a new mom, and so I held on to that. [...] As a safety net. (Irene)

On the other hand, control can negatively impact the relationship. There were instances where patients felt out of control, and the decision-making power was not in their hands. This imbalance of control, when the situation is not emergent, created weaker bonds between patient-HCP. This divestiture of power is also a result of weaker bonds. Misalignment between patient and HCP seems to happen more often between on-call doctors in labour and delivery and labouring patients. It does not often happen between relationship-based HCPs and patients. Alice talked about interactions with care personnel that were not her primary HCP:

I think I felt a little out of control, because it was like pressure to get the Pitocin. Cause I mean, I could have said no, right? But they were like, just kinda—it felt like a scare tactic a bit at the time. (Alice)

Strong relationships between patients and HCPs mean that control is in the patient's hands until the patient is no longer able to be in control due to extenuating circumstances. Strong relationships allow patients to feel comfortable when they need to hand control to the HCPs. Consequently, strong relationships allow patients to trust science when it is experienced in their care.

5. Trust. The final antecedent factor of a patient-HCP relationship is trust. A patient's experience of science impacts and is impacted by trust in their HCP. In many ways, the HCP is the delivery system for science. By extension, the trust or distrust placed in science applies to the HCP. Trust is the firm belief in the reliability, truth, ability or strength of someone or something (Lexico.com, 2020). Trust ensures that patients have confidence and believe in the integrity of their HCPs. Strong relationships have trust.

Science impacts the patient's trust in herself and her own body. Patient awareness of the risks and benefits of a particular intervention or course of action can cause doubt. More than that, when the "normal"/standard/typical decisions or experiences are salient to the patient, they doubt their bodies' capabilities and signals. Science creates mistrust in personal expertise. *Leone* trusted herself and the expertness of her own experience, symptoms and abilities, which is vital for decision-making and positive health outcomes.

I guess like especially with my first one. I just really trusted my body and I trusted the process and I trusted my baby and I haven't seen bad outcomes. I haven't seen unhealthy pregnancies. (Leone)

Science also impedes trust in itself by virtue of its uncertainty. There is always a margin of error in scientific research. Scientific training reinforces the idea of expressing an amount of uncertainty as a responsible way to report science and present research. However, this can be confusing and stressful for patients when a percentage of error becomes a part of the scientific information presented to them. For my participants, the framing of these percentages and chances of issues led to worry and anxiety (*Harriet, Jennie*). As extensions of science, HCPs are subject to the same barriers.

Science is also defined as a way to find truth; it is a way to study the world and understand it enough to predict it. Another essential element to scientific rigour is the reliability

of research—whether it be replicated, and the findings repeated. For patients to trust research, multiple studies should validate the research. My participants understood this source of reliability and cross-checking in research (*Leone, Carrie, Frances, Jennie, Elsie*; see 4.2.1 Information Flow). There are conflicting bodies of knowledge, and depending on your HCP, conflicting practices and philosophies (*Leone*). Trust became difficult as a result of uncertainty and confusion. Advice and direction from a trusted HCP would enable successful navigation of science (*Alice, Irene*). Trust contributes to HCP's ability to provide patients with the tools and navigational abilities to use science as an asset to their care.

Patients can be reassured, and decision-making eased by having trust that your HCP will act predictably. Patients often saw science—or scientific care—as safe. They wanted births with very little scientific intervention, but they wanted the training and knowledge that accompanies science to be present should anything go wrong (*Maude, Jeanne, Donna*).

Thank goodness, everyone there is calm, cool and collected. You know, it's not your job to be calm, cool and collected. [...] I think the only challenge I had was all I kept asking was like 'is the baby okay? Is the baby ok?' And no one will answer you. Because all they care about, is getting this baby out, right? It's their focus. Which it should be, right? (Jeanne)

Trust should be something that science helps with, yet it stands in its own way. The nature of science and how the HCPs and the system have utilized it creates barriers for patients to put trust in the HCPs and scientific bodies of knowledge. A strong relationship fosters trust between patients and HCPs. Trust also makes science salient through a more profound connection and ability to believe in HCPs.

4.3 B. Science Experience

The second set of categories derived from the data about how women navigate science during their care were the ways women experienced science. Science experience describes three areas that women encounter science. The preceding (a) antecedents to the science experience prime patients to navigate science (or not, depending on the factor). There are three engagement platforms for patients and science, (1) decision-making, (2) success metrics, and (3) policies and procedures. The noticeability of three areas of interaction with science are impacted the (a) antecedents. These experienced areas of science engagement also have impacts on the (c) outcomes of the science experience. Each of these areas of the science experience will be discussed in the rest of this section.

4.3.1 Decision-making

The first place that patients encounter science is when they have to make decisions. Choice-making is an integral part of maternity care. It is a way to express agency in a largely disempowering situation. Being able to make these choices with confidence allowed patients to have control. Having these

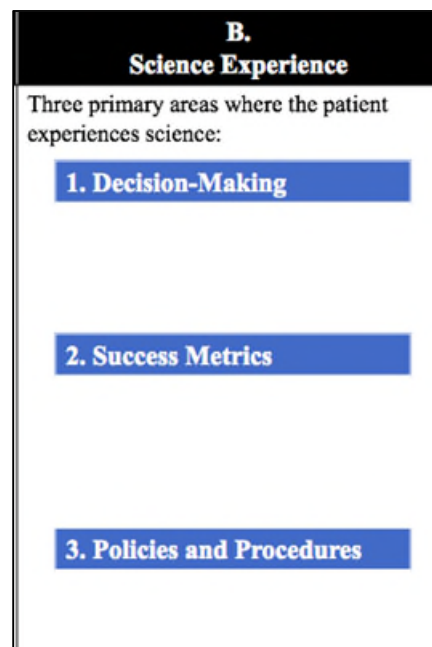


Figure 4.3 Science Experience

preferences heeded and taken into account was necessary for these women. Decisions and options regarding their care included preferences about cord clamping, medications, birthing tubs, doulas, and much more.

EBDM is an essential outcome for patients and HCPs; it is an underlying paradigm for practicing “good” medicine. EBDM incorporates evidence and ensures that patients have all the necessary information to make satisfactory decisions. The context of western medical practices in my study indicates that EBDM should be present. Yet, EBDM is not always practiced, and researchers indicate that though both patients and HCPs desire EBDM, patients remain in poor control of their health outcomes (Moskowitz & Bodenheimer, 2011). The supports do not exist for patients to integrate scientific evidence into their lives and decisions (Moskowitz & Bodenheimer, 2011). My research suggests that science needs to be navigated and engaged with specific (a) antecedents to the science experience, to utilize EBDM.

My participants liked it when they were given information, research, and insight into how HCPs constructed practices. Some of the participants also wanted science (evidence) to be interpreted by their HCP. Whether alone or with HCP expertise, participants wanted scientific evidence to be a part of their decision-making process.

I mean part of it was just like, doing some reading on my own, and like, you know as your pregnant you read about how they're changing and developing. It's just so interesting, it's incredible. So I think it was just my curiosity more than anything. (Elsie)

So we do like to have arguments for things and um, you know, evidence-based things are always better. (Frances)

In decision-making, information and evidence are important; however, interpersonal dynamics also impact patients' decisions. Power and respect impact decision-making through the presentation of options and choices to patients. In my project, physicians could be persuasion agents, where they encode messages about treatment options and try to position that message in a particular way. The patient is the decoder who has to make sense and use of this message. Patients felt they were being persuaded to make decisions or opt into interventions.

Patients felt they had to ‘be on guard’ against persuasion attempts for interventions (*all participants*). Participants were prepped by peers, prenatal educators, and various reading materials to be vigilant against unwanted interventions. These persuasion attempts further hinder successful rapport and patient-HCP relationships. Her peers warned *Carrie* against unwanted interventions:

They are so busy that they will give you stuff that maybe you don't need. Or maybe could do without or could do it a different way. And I never would have thought that, until, people were telling us. So I'm glad I knew that ahead of time.[...] And they're not trying to trick you. But I think that, like, for one example they said we can break your water. And if they broke the water, that would possibly reduce the time—duration of labour in general. Ok sounds like a great idea! Less labour. Right? but they don't necessarily remind you of when you do that it could mean this, this, and this. Meanwhile before you learn that yeah, if they do that it could mean this, this—but you forget all that. Because that's not top of mind. So that's I think that's kind of. Stuff like that where it sounds great in the moment and then after you're like...[...] I wish I hadn't've done that. (Carrie)

In some cases, like *Roberta's*, interventions or services were not presented as options.

It was like two or three in the morning, and they were like, 'yup, we're going to give him a bath.' I'm like, 'excuse me?' and at that point, being a first-time mom, I didn't feel like I could say no. Um, and I just remember thinking like, is this really necessary? [...] and I remembering asking my friend who's a nurse, like months after, like 'why? And what is that?' and she's like 'you can say no.' (Roberta)

Options that are not presented as optional can prevent patients from participating in the care, having agency, and removes science from the decision-making process. It should be noted that this was not always the case. However, patients expected persuasion and when patients felt they were not being persuaded, their evaluations were positive. *Leone* and *Elsie* both remarked on the lack of persuasion:

I felt like, like when I presented what my ideal sort of plan would be, she was very open to it and um, yeah so that wasn't hard to—to sort of communicate with her sort of what I wanted. She wasn't—didn't seem like she was pushy at all[...]—but the nurses again, they just sort of asked if I wanted one, I said 'no.' They said, 'okay sounds good.' And yeah, we just sort of went from there. (Elsie)

So I think he does err on the side of caution, but he doesn't push invasive sort of interventions throughout the process. (Leone)

Being on-guard for persuasion attempts made patients find loopholes in the science they encountered. Loopholes are ways for patients to work around the healthcare system and avoid engaging the HCPs. The act of finding loopholes was a way for patients to express their agency. This process of loophole finding was effortful for patients. Like agency, it occupies time and mental resources to navigate around science. Women's time and resources were already taxed by concern for their health, the baby's health, and responsibilities outside of pregnancy (careers, work, family, friends). Persuasion attempts and loophole findings mean that patients were focused on protecting themselves; they felt they were at risk of being persuaded into unwanted interventions. The “cascade of interventions” was a risk known to many participants (*Carrie*) and my PFA. Protection motivation theory suggests that perceiving a risk will influence decision-making (Maddux & Rogers, 1983). This threat of assessment could impact to whom patients give power/control/autonomy in a fearful situation and how they make decisions (Youn, 2009).

Agency is relevant because it incorporates EBDM and persuasion-free choices into the decision-making factor of science experience. Agency made it easier to rationalize and assimilate outcomes if patients had agency in the science-based decision-making process. *Leone* felt supported in opting out of a particular test, and *Carrie* felt she was given up-front options about an induction:

So... I think I'm fine. And he's like well you're not really in a high-risk category so you're probably—and he like kind of supported me through that. So, I actually never did go, and everything was fine. (Leone)

We talked about it every time we saw her. [...]. Like she told us all of our options. Um, she was very up front about it. And by that point I think she just knew my personality and just knew that I wanted more information. Um, and so she—she gave us all that information about the induction. (Carrie)

4.3.2 Success Metrics

Success metrics are the second way patients encounter science in their healthcare. A success metric is a standard against which individuals measure something to determine if it has been successful. In a services marketing context, a success metric is similar to an expectation; it is a benchmark against which individuals gauge whether or not they are happy or satisfied with an outcome. Success metrics and expectations, in a medical context, are often informed by science. This section will discuss how expectations and metrics are experienced by patients and HCPs and then elaborate on the nature of those expectations.

Expectations help HCPs provide evidence-based care by communicating science to their patients. If HCPs expect a patient to have complications, they can offer evidence for ways it can be handled in the future (*Harriet*). Expectation-based guidelines, therefore, are a vital way of navigating science. Moreover, science helps patients form expectations, and with an amount of certainty, they can predict and prepare for future events and decisions. For *Frances*, the expectations did not match the experience:

I thought it was going to be this goddess experience blah, blah, blah, organic, granola, nature, my body's meant to do this—it sucked. (Frances)

As expectations are so influential to the science experience, how they are set is imperative for positive patient evaluations. Expectations should, and usually are, created by a cornucopia of sources. These multiple sources help HCPs to not have to provide all expectations for patients. Setting up expectations is time-consuming; it requires a lot of information flow. Mainly relying on HCPs to set expectations can hinder HCP's offerings of care, paradoxically making the expectations harder to meet.

Many patient-HCP relationships are impacted by time spent together. Many participants commented that HCPs seemed 'rushed' and 'busy' (*Maude, Carrie, Roberta, Jeanne, Elsie, Donna*). HCPs cannot set expectations for realms outside of medical practice, either due to time constraints or expertise. If HCPs are the only individuals setting expectations for patients, then there will be unrealistic expectations constrained by a scientific lens. The HCPs can be biased in their expectations. There are outcomes and actions the women expect from their social supports, workplaces, and bodies during labour, postpartum, and more. Experience can be a source of expectations; they can aide in confidence levels and more accurate expectations. Confidence that she knows what she is feeling and experiencing is enough to express her agency and these come from previous personal experience of pregnancy (*Roberta*). Patient's needs and decisions will have more knowledge behind them.

Some expectations are likely to be missed, because there are so many to set. In these cases, women do not know what to expect:

With my first I didn't know what to expect. My water had broke at home. I waited for an hour. Then it got to the point where I was like 'ok, I probably—should probably go in.' (Roberta)

Moreover, if the expectations do not align with the service outcome, the outcomes for patients will be poorer. A poor outcome, like fear, could be unfavourable for a strong HCP-

patient relationship. Additionally, strong relationships can help patients form their expectations without fear. *Donna* did not have a strong relationship with her HCP:

So I wasn't too sure what to expect. But obviously I did not want to google it or look anything up, cause I thought that would scare me more. (Donna)

Misalignment is natural when the plethora of expectations each have different foci and objectives. Some sources set biological expectations (HCPs), emotional expectations (media, social supports), or expectations of the service (media, social supports). There could also be expectations for different actors in the healthcare context, including mother, baby, or HCP.

When expectations or success metrics were not met patients were unsatisfied with their care. For *Harriet*, there were instances of health issues 'missed' by her care team. Though she still enjoyed the care she was given prior, her satisfaction with the quality of care, in hindsight, was diminished. In this case, however, *Harriet* was *still* satisfied due to her wholeness interactions with her HCP (see 4.4.2 Wholeness). The realistic, met, and exceeded expectations (as discussed in the (c) outcomes of the science experience section) have different amounts of achievement which will impact the outcomes of science.

Depending on what they are, expectations can work against positive outcomes for patients. The success metric that most of my participants used was a healthy baby; they wanted "at the end of the day" to have a healthy baby (*Harriet, Leone, Carrie, Frances, Jennie, Jeanne*). This is what they saw as a satisfactory outcome of care. Similarly, HCPs tend to use healthy babies as their optimal outcome. In many senses, having aligned objectives is vital for HCPs and patients to engage in productive teamwork and strong relationship bonds. The baby was the priority for health and well-being. First and foremost, my participants would say that this is where the priority should lie. Contrary to these claims by mothers, however, they also stated that when their health and well-being were prioritized, their care evaluations increased.

So in terms of their care, I mean, they got their job done. Even though I didn't feel that I was that important in their line of work throughout the day. [...] I didn't feel that important. But I'm happy with my end result. (Donna)

The well-being of mothers is not accounted for in the "healthy baby" success metric, and consequently the mothers in my study felt disrespected and disempowered, dispossessed of a level of control (*Donna, Alice*). When these patients felt they were not an important part of care or decision-making, expectations for care were diminished (*Donna*). For some of the participants who had intense pregnancy symptoms, they struggled to clearly define a success metric. When nausea conflicted with one participant's goal of healthy eating through her pregnancy, she struggled to reconcile and take medication to nourish herself (*Irene*).

There was a decision around whether or not to take the medication because, you know, there's a lot of conflicting information on which medications impact development of the fetus. Um, and so it—like essentially it came down to my quality of life, was so poor and I was eating so poorly that uh—if at all—that my doctor was really good at—she basically said like 'the most important thing is that you eat, and if that needs to be like white bread and cheese wiz or a hamburger, like you need to get food in your body.

And that's ok. [...] 'That's what you need to do.' So, she was really good about that. Because I was feelin' tremendous amounts of guilt. (Irene)

This conversation stood out to my participant and she had a positive evaluation of her care.

Beyond the tension between health priorities for baby or mother, there are many other expectations. Patients are expecting to have a relationship with the HCP, to encounter science, processes, and bureaucracy, and to experience EBDM, and PCC. These expectations are well documented and established in the zeitgeist of birth and pregnancy. My participants also expected to be respected as demonstrated by their expectations around wait times, thorough and empathetic care, and having concerns brought to their attention (*Jeanne*). They were expecting to be in control of their care and to have agency. Importantly, they were expecting to be treated as whole-persons and to be satisfied.

Patients also sometimes had unrealistic expectations of HCPs in terms of their omniscience and knowledge. As conduits of science, HCPs were expected to have all knowledge at their disposal and be flawless in their delivery and capabilities. If expectations were realistic in their conceptualization of HCPs as persons, expectations would be realistic and, therefore, more easily met.

Expectations also help patients feel 'lucky compared' to the worst-case scenario (*Leone, Jennie, Alice, Irene, Elsie, Donna*). Horror stories and the unpleasant experiences from social supports and mass media set the expectation that pregnancy and birth can be unpleasant and have unpleasant outcomes. Therefore, if patients have marginally good care and the baby is healthy, they have the perspective that their experience was good. The standard was low based on word-of-mouth reviews. However, there are so many other ways that pregnancy can have healthy outcomes for mothers. They can have easy recoveries, or pain-free, and calm births. When patients anticipate worst-case-scenarios, it induced anxiety and stress (*Harriet, Frances, Donna*). Patients expected that science knowledge would cause them stress and worry because it would not be easily understood or hyperbolized in the worst-case scenarios.

The science experience is characterized by encountering success metrics. For better or worse, "expecting" can be rife with inaccurate and demanding metrics. Many expectations are set by the scientific community and do not incorporate humans as flawed and individual. Science experience is influenced by the previously discussed antecedents, and their ability to amplify or diminish science in the eyes of the patient. Success metrics have consequences for the evaluations of (c) outcomes of the science experience.

4.3.3 Policies and Procedures

The last way that patients encounter and engage with science is their experience with policies and procedures. Policies and procedures include the rules guiding HCPs in their practices, the regulated actions of HCPs, and the policies that structure the healthcare system. These rules can be formal or informal, but they are typically grounded in science and imposed on patients.

The rules are a by-product of "science" that my participants did not associate with the traditional core definition of science. The traditional definition of medicine includes practices and procedures, treatments and decision-making processes as a result of applied sciences. The policies and procedures are the vehicles for science communication, and the HCPs are the

mouthpiece. This connection was not always clear to my participants or myself in the process of this project, but became increasingly obvious to me as I progressed through this research.

I asked participants to discuss the science they encountered in their conversations with their HCPs. My participants struggled to answer; it was not straightforward. However, when I asked them to talk about their experiences, participants had a plethora of stories to tell about what they were allowed to eat (*Carrie, Maude*), which anti-nausea medication they were allowed to take (*Irene*). They spoke of almost missing the “magical” window to take a sugar test, or arrive at the hospital (*Leone, Alice, Donna*). These rules dictate the acceptable treatments, birth plans, breastfeeding schedules, behaviours and even emotions of the patients. The rules can be things like which food or drink is safe to eat, how to exercise, when to bathe the baby, when to get a gestational diabetes test, filling out forms, answering questions (repeatedly), waiting to be seen, labouring in public areas, among others (*all participants*). The policies impact almost every step of the process and often require lifestyle changes from the women experiencing pregnancy. I came to realize that the processes and procedures enforced by HCPs are about science. They are about science because they are defined by science. These rules play a big part in shaping the experience of my participants. The conversations about these policies and procedures become the language of science conversations between patients and HCPs.

Many of the women in my study encountered policies and procedures that often were cumbersome to positive experiences of pregnancy healthcare and birth. Patients experienced the effects of science on healthcare through the creation and enforcement of policies and procedures.

So, I asked if that was safe to use at all. And she said, if you really need to, break the pill up and take like a third of the pill. Don't take the full dose. So, I did that on occasion if I had to. (Carrie)

I felt like, it was more me taking the role of like, trying to be proactive with 'what can I do? What can I not do? Can I take this? Can I not take this?' whereas like, I wish they would have just offered information. Um, so if I didn't think to ask the questions and I just took certain things without knowing or yea. [...] You know the main points, what you can eat what you shouldn't eat. All that kind of stuff. (Maude)

The policies and procedures are communicated to patients through the HCPs and the healthcare system. Peers, other mothers, doulas, nurses, technicians, and even the previous experiences of the participants themselves enforce the policies. Mass media and other information sources fortify them.

These policies and procedures impact the patient, her course of action, or available options, but they also impact the HCP's decision-making for providing care. They determine such things as who is allowed in the delivery room, who can catch the baby when to deem a c-section necessary, what the conditions are for an epidural and when to administer certain (often lifesaving) actions. Policies, processes and procedures are followed by HCPs and required by the system for standards of practice.

Because we knew that we were going to wait, and if I wait that long when I get there, I'm not going to be able to answer like ten thousand questions because they've got all that paperwork they've got to do. And [...] so she's asking me all these questions to try and get the history. And I was like 'I can't answer—' (Alice)

Much like the success metrics, policies and procedures can guide what the experience of pregnancy and birth will resemble. For first-time mothers primarily, policies can provide a sense of control. Patients can make a birth plan, anticipate what is to come and be reassured that following the procedures has a predicted outcome—a healthy baby (*Jennie, Donna*).

The rules end up defining how the healthcare system functions. Often the rules are made based on science and not based on the patient and their needs. As a patient, a person's needs are commonly ignored by the science rules. A whole person's needs are harder to ignore. The red tape and the bureaucracy of the system disadvantaged the patient and the HCP so much that recognition of each other as more than the biological body (patient) and the scientific mind (HCP) was not possible (*Jennie, Irene, Elsie*).

Policies and procedures grounded in science are also in service of science. Filling out forms and answering medical history questions are for the HCP to make health (evidenced, and science-based) decisions. Wait-times, and admitting processes are deemed safe based on scientific research, but they are also “collateral damage” for women. *Roberta* and *Donna* experienced disrespect in their waiting conditions due to policies and procedures:

*I didn't feel like I was listened to. [...]. So, the triage area in the front—and I've heard a lot of complaints about that process. [...] I remember thinking with my second where I did all of my labouring in the waiting room I remember hearing the doctor come out and say there was two people in the waiting room or in the—the triage rooms, saying 'yup, they're still at two centimeters,' and I was like 'I walked in here with four!' Like I get first come first serve but like at what point—like check me right here in the waiting room. I don't care. Like— (*Roberta*)*

*If I felt a little off in terms of like being rushed out of there, or waiting too long, that I wouldn't say anything about. [...] And plus I heard she's great. Like I—that's all I'd been hearing, was she's a fantastic doctor, she's really good at what she does. And at the end of the day, I'm like 'I don't really care if you're a people person or not, or if you're busy. I want a good surgery. I want a healthy baby.' (*Donna*)*

Informed decision-making was important to patients. Understanding the source of the policies and the reasoning behind healthcare practices contribute to positive perceptions of the relationship and decision-making. In particular, *Leone* expressed her increased forbearance for the perspectives of the HCP due to an understanding of guiding science:

*Just in general, like I do like to see the research because it um, it makes me feel like I'm making an informed decision. So, I did appreciate the approach. I don't remember her name, I did appreciate her offering that resource to me, and providing that. Um, just because it makes me like, trust the practice a little bit more. (*Leone*)*

HCPs are bound by the policies and procedures, impacting the outcomes of a science experience for patients. My participants talked about the checkboxes that HCPs were cataloging during consultations and appointments. This process of treating each other according to the checklist's basics is not conducive to strong relationships, communication, PCC, and other outcomes. Checking-off boxes, and making salient the regulations of care, create a barrier for HCPs and patients and hinder meaningful conversations. Meaningful conversations can be about

any number of things such as mental health, careers, children (existing and future), care options and philosophies. *Leone* stated that policies stopped meaningful conversations:

Going through the whatever questionnaire post-partum depression questionnaire, which is so stupid but, I always received it, and I felt like there was an element—or an element of mental health in each one of those post-natal conversations. Which wasn't meaningful, but it was there. [...] so like I don't think those conversations are being had in a meaningful way. I think they're more like checkboxes that need to be like 'ok I need to record that I had this conversation with you. And that I recorded that like this is where you can go for help if you need it.' Um because I think like the most meaningful help comes—doesn't necessarily come from somebody who's being paid to help you. (Leone)

Patients positively perceived their care when policies were broken or bent by the HCPs so that the HCP could provide individualized care informed by the unique patient-HCP relationship and knowledge of each other. In these instances, patients felt that they were persons with unique abilities or capabilities that had been seen by the doctor (*Alice, Elsie*). This way of finding loopholes showed patients that their HCP trusted them to be responsible outside of the policies' structure and procedures. *Elsie* had the policies bent for her when her doctor discharged her early from the hospital:

Um, so I—ah yeah, so I feel like we exercised that agency, because we were pretty ready to get out of the hospital at the end. Um, and yeah, but just like knowing what that sort of meant, right? Like 'so this isn't necessarily protocol. I'm signing off on it. Here's somethings you need to watch for in case.' Yeah. (Elsie)

In external reading, some of the policies and procedures enforced by the healthcare system were found to be no longer evidence-based—the research community had found new/better/healthier ways to provide care and treatments. External reading was another way to find loopholes in scientific care, yet participants, knowing this new evidence, would still seek permission to act. For example, many participants know from external information that eating is safe in labour and delivery. *Irene* explains:

So, I hadn't eaten for like over twelve hours when I finally asked if I could have something to eat. And I had a nurse say, 'no. Because if you go to emergency c-section you could throw up.' But I knew that that wasn't true, I knew that the research showed that there's not increased risk of that. And that the research shows that the women should be well nourished. That they can push, and they have the energy to deal with a long labour, um, and so we kept asking medical professionals, because there were so many people coming in and out, because I was a high-risk delivery. We just kept asking until we finally got somebody who said 'yes, you should eat.' And then I ate. Because we knew what the research said. But you know the professionals around us, didn't. (Irene)

Knowing better, *Irene* continued to seek permission, adhering to the non-evidenced rules. This is illustrative of the lack of 'up-to-date' and evidence-based medical practices and the power dynamic between patients and HCPs in a hospital setting. Patients were at so much of a power differential that they could not navigate around the policies to eat (*Roberta*).

Science is a rigid box; the policies and procedures are very restricting in determining what is right and wrong for patients, hindering the individual agency. My participants expressed this as saying that things were very “black and white,” or decisions were “life and death” (*Maude, Carrie*). Patients felt that there was no space to exert their power or individualization.

The policies and procedures facilitate traditional power structures: the HCP is powerful, and the patient is not.

Overall, agency seemed to become harder when in a hospital, labour and delivery setting. Labour and delivery can mean that ‘everything’ happens at once, a whirlwind, or a blur (*Harriet, Jennie*). The hospital setting more strongly implies that the HCP and the system are in charge. In this way, policies and procedures impact the ability of the patient to have agency. Patients experienced science through the enactment and adherence to policies and procedures grounded in science.

4.4 C. Outcomes of the Science Experience

The last set of patterns grounded in my data from women navigating science during their care are the (c) outcomes of the science experience. The outcome factors are the consequences of engaging with science as a decision-making tool, a success metric, and policies and procedures. The outcomes of the science experience are threefold: (1) patient-centred care, (2) wholeness, and (3) satisfaction. Each of these three factors is made up of several parts, found in the data. These outcomes are impacted by the (a) antecedents and (b) experience of science. These outcomes are the overall outcomes of a maternity care experience with science, rather than outcomes of specific interactions with science.

4.4.1 Patient-Centred Care

1. Personalized/Individualized. Personalization and individualization are relatively self-explanatory. PCC paradigms advocate for care to be tailored to the patient. The (b) experience of science does not easily coordinate with PCC. When science is highly salient, it can act as a barrier to revolving care around the patient, especially in the case of policies and procedures that benefit the HCP and the system rather than the patient. Decision-making and knowledge translation of options only become PCC when strong relationship factors and individual factors facilitate it. *Carrie* illustrates this connection between personality (an individual factor) and knowledge of care options:

Like she told us all of our options. Um, she was very up front about it. And by that point I think she just knew my personality and just knew that I wanted more information. Um, and so she—she gave us all that information about the induction. [...] [The HCP] was really good. Um, she definitely had the right personality for my husband and I. Like got along really well. (Carrie)

Success metrics and expectations that are heavily informed by science also do not align with PCC. PCC and satisfaction are harder to achieve when success metrics are unrealistic or ill-

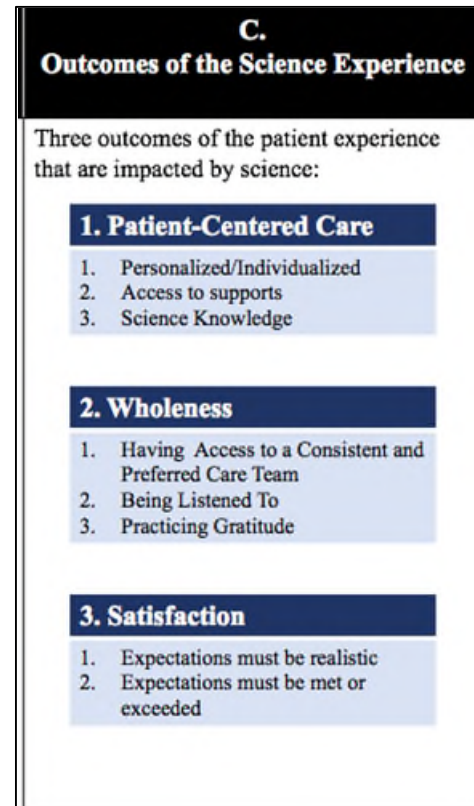


Figure 4.4 Outcomes of the Science Experience

formed. *Jennie* was expecting a larger than the average baby. This expectation, based on scientific tests, created some frustration for both herself and her HCP:

I feel like, my doctor cares about me, as—as far as like, he was happy that—er he was sad for me that the VBAC did not work. And he didn't deliver, but he came the next morning, to visit us, to check in, um, he ex—he definitely shared my frustration with like 'oh you had a seven-pound baby and not a twelve-pound baby? Damn them.' You know, so, he didn't have to do that, he doesn't have to come and check, he doesn't have to have those conversations with me. So, I feel like he cares about me. As far as is my care individualized? ... I think the answer to that is no. mainly because it didn't have to be. If that makes sense. (Jennie)

The policies and procedures of science do not promote PCC. They do this by standing in the way of HCPs offering individualized care. PCC is not able to prevail as HCPs have legal and ethical and practical guidelines to follow. Nevertheless, my participants (almost unanimously) felt they were receiving PCC when their personalities or individual traits were recognized. *Maude, Jeanne, and Elsie* explain:

I loved my experience [...] more personal, more um, I felt like more attentive almost like they knew—more of a relationship I guess. I think she just knew me—my personality. (Maude)

I think she just, you know, joked around, or like she'd say thing—like she'd be like 'yeah, you're doing really good.' And whatever, you know, and she'd like tell me when I was going in near the end of my pregnancy she'd be like 'yeah I'm—I'll be at the hospital on Wednesday, like you should try for Wednesday.' [...] Um, so she just seemed like really invested in my pregnancy I guess, which was like nice. You know? Um, so that's why I would say that it felt like that. [...] Yeah, and it's just followed up lots and like even post um, pregnancy um, she would le—she like called me at home actually with some results and stuff. Just like stuff like that. It was—she's really nice that way. Just felt way more personal. (Jeanne)

And then like the individual care is always so good. Like the nurses once you're there, is wonderful, right? Calm, they talk to you [...] Whereas, yeah—even if you are in need of care, you know, you also have options and choices that you get to make as an individual. (Elsie)

2. Access to Supports. Access to supports is the second way that patients experience the outcomes of the science experience. Some of my participants had difficulty navigating science and observed a lack of access to support. Lack of access was apparent when participants were unaware of which supports were available to them, or their rights and options during care. Some options were not presented by their HCP (*Harriet, Maude, Jeanne, Carrie*), and some participants were denied the support they felt they needed (*Frances, Alice, Jeanne, Irene*). *Jeanne* found the post-partum care lacking, and *Leone* found the mental-health care lacking:

Something I would say though, like especially uh, for mommas who've had a c-section is there's all these restrictions, you can't lift, you can't drive, like you can't do all of that, um, stuff, [...] There's nothing in place for stuff like that. I don't know how um, most c-section mommas do that. [...]like I know in um, like

lots of places in Europe there's people that come in and do your laundry and like, you know, like post-partum, like it seems bizarre. But I guess everyone just has to figure it out. (Jeanne)

The support of the paid professionals is there it's important but it's not as meaningful as some of your personal relationships. (Leone)

Yet, many of my participants were still searching for PCC and were found to be circumventing their GP or OB to have access to other care providers such as physiologists, pelvic floor specialists, educators, lactation consultants, and others. However, as *Alice* says, you end up “muddying the waters trying to figure it all out.” The science experience hinders PCC by limiting the HCPs and the system.

According to my participants, satisfaction with care is decreased when PCC is not offered. Due to the power imbalance experienced by patients, there were no instances where my participants demanded PCC of their HCPs. It was more likely that my participants would look elsewhere for their needs—either to other types of HCPs, to their peers, or even to midwives for subsequent pregnancies (*Maude, Frances, Alice, Elsie*).

Positive outcomes of access to supports included patient participation with breastfeeding consultants, social, online, and formal motherhood support groups, referrals, pre-natal courses and more. *Irene* felt incredibly supported by the staff in the neonatal intensive care unit (NICU):

The people who work in the NICU are amazing. They are so kind, they are so generous—like and I—I wasn't allowed to see the lactation consultant but anytime I—I asked—we asked multiple nurses like ‘do you know how to do this? Do you know how to deal with this engorgement?’ [...] and they didn't, because none of them have training in that. But almost every single one would say ‘I'm going to try to find someone for you.’ And one of them did find—she found another nurse who was training to be a lactation consultant and that nurse—they like switched their shifts around, so that that nurse could come take care of our baby, and give us advice and she ended up calling her instructor that night to get more advice. Like the—the people in those positions really are doing the best that they can, but the system is not supporting them or new moms. (Irene)

3. Science Knowledge. The final aspect of a science experience that contributes to PCC is scientific knowledge. Previous research has shown that (scientific) knowledge empowers patients to get involved (see 4.2.1 Individual Factors). My participants similarly expressed that knowing what they are talking about enables them to ask intelligent questions, understand more quickly, and advocate for themselves. They all wanted individualized care and noted that this was when they felt ‘cared for.’ Science knowledge is more easily navigated through PCC. This contradicts how science decision-making, success metrics and policies and procedures do not coordinate with PCC. Science knowledge is separate from science experience. PCC helps patients to engage with knowledge and mitigates some of the negative aspects of encountering science in care.

HCPs are restricted by policies and procedures and will not ‘risk’ patient outcomes (as predicted by the policies) on innovative practices (*Carrie, Frances*). Evidence-based practices are rigorously tested and proven over time to be the safest ways to offer care (Garbes, 2018). Innovation—a central tenet of science—is not ethically practiced in medicine. Rigorous and

extensive testing must occur, which is difficult to do ethically (especially with human subject considerations). Therefore innovation and progress are often stalled through the scientific process (Krepes & Maibach, 2008). This binds HCPs and patients to ‘old-school’ practices. Cutting-edge research in maternity care and other healthcare areas is not recommended and encouraged by HCPs. Nevertheless, this information is accessible to patients, creating tension for the patient-HCP relationship trying to experience science *and* PCC. *Leone* liked seeing the research, and perceived her HCP to be more PCC when they offered her research:

She was like ‘well this is what the research tells us, and I’ll print you off a couple studies if you want to read through them’ and so she was a little bit more up on sort of the basis of current practices. (Leone)

Though innovation and change are slow to filter into practice, my participants indicated that women were calling for better care to be offered and changes to be made to the system (*Roberta, Elsie*). There is a desire for innovation to be offered, and the literature is demanding better ways to have babies, handle pain, and offer PCC (Parry, 2008; Garbes, 2018). *Leone* also mentioned patient-advocacy in the context of scientific research and care offerings:

So like some of those things I think are changing and I just think like, overall I think people are demanding that obstetrics change the way that they approach labour and delivery and care of newborns. So I did see some differences between the two for sure. And I think the differences were in part due to the nature of the delivery. But also I think that obstetrics has changed in the last two years. In sort of the way their philosophies and they way that they look at childbirth. (Leone)

My participants felt the limitation of medical knowledge and the ability of a system. They suggest that the system was lagging and that their bodies and pregnancy were understudied. There was a level of frustration with the lack of clarity and ‘answers’ they had available to them and to their HCPs (*Leone, Donna*). Patients can interpret this limitation as not being seen by the medical community, which made them feel disempowered and disadvantaged by the medical system. *Irene* and *Leone*, in particular, observed the limitation in knowledge:

I don’t fault the doctors in particular. I don’t think that my doctors were unknowledgeable, I think that the—the knowledge just isn’t out there. [...] But while I was pregnant, [...] What I struggled with more was that the doctors seemed frequently unable to name what was wrong with me. [...] Like I would come in and say, this hurts this way, and they wouldn’t—they hadn’t—they didn’t know. They would be like ‘well.’ I so often got the response like ‘well, that’s just pregnancy.’ (Irene).

Like just treating symptoms to be just doesn’t jibe. [...] like why am I still sick? You know what I mean like? So. Um, yeah. I think and again, I think that just speaks to the limitations of like, just medicine in general. And our knowledge about different issues. Um and so a lot of again, a lot—I think when I was younger I was just really avoidant. And now when I’m older I’m like well you can’t avoid the medical system. Like you have real issues you need to address. And especially like when you have kids and stuff. So now I just double check everything. Basically. [...] Like, um, still for the most part, I sh—just feel like the limitations of medicine, um, are not providing...and I don’t think it’s necessarily even the doctors. It’s just like, the limitations of medicine. (Leone)

4.4.2 Wholeness

Wholeness is the second outcome of the science experience. In my research, wholeness is a profound respect for the patient and HCP as whole human beings with intricate wants, needs, and experiences outside of the biological. This section will describe wholeness, as defined and indicated by my participants. I will then discuss the factors that contribute to a perception of wholeness by my participants. These factors are (1) having access to a consistent and preferred care team, (2) being listened to, and (3) practicing gratitude.

The elements of the theoretical framework that come before wholeness, including the antecedents, the science experience and even PCC, contribute to wholeness perceptions. My participants conceptualized wholeness implicitly. Through a collection of experiences, I interpreted that patients perceived more satisfaction with their care when they felt they had been treated as whole. Wholeness means that patients' whole narratives, whole capabilities, whole intelligence, whole experiences, and whole lives were considered when HCPs were interacting with them in the context of science experiences. Wholeness includes individual factors, individual agency and relationship factors as part of a patient's care experience with science.

Wholeness can be defined by my participants as profoundly rooted respect based on the whole-picture of complete and complex human-beings for the sake of themselves. The healthcare paradigms' traditional success metric is patient health. The success metric of wholeness is a positive experience unrelated to healthiness. Wholeness is respect for a positive service experience with other humans and service providers. Wholeness, I feel, encompasses health outcomes, from an emotional and overall well-being perspective.

1. Having Access to a Consistent and Preferred Care Team. The first factor of a wholeness outcome is having access to a consistent and preferred care team. The individuals who make up a care team were important for feelings of wholeness. Consistency in a care team meant constant and regular individuals, which helped patients have strong relationships. Access to a care team meant having regular contact and available connections to preferred care individuals. Continuity of care where the same care team handles labour and delivery, and subsequent pregnancies also serviced strong relationships. Consistency and access in a care team were appreciated (*Harriet, Maude, Leone, Carrie, Irene, Elsie, Donna*). Irene felt that she did not have the access she needed to her HCP:

I did feel like it was hard to get into my doctor and so I would often end up seeing a resident or somebody else in the practice, because she just wasn't available, because she was so overbooked. (Irene)

Having increased levels of access via office hours, emails, apps, phone calls, make the patients feel special, or well-treated by their care team. Many participants reported that some appointments with OBs and GPs were brief and rushed. It was the nurses who spent more time with the patients. The women in my study felt they could ask more questions of educators, nurses, and technicians because they were less of an inconvenience to these HCPs. My participants worried about presenting trivial matters to GP/OBs, thus wasting valuable time.

I always um, I know doctors are so limited with their time, so I feel like I didn't really... [...]or didn't have like, during my appointments, I didn't have a ton of questions. (Elsie)

I often wished that there was an easier service that I could access to just ask—the you know, go in for five minutes and ask the question. Like a nurse, maybe? Like nurses who were dedicated to—I—it didn't, like so a lot of the questions that I had, it really didn't feel like a doctor was the right person to be asking. Like it was not a good use of that resource, but I didn't have anyone else to go to. (Irene)

The demographic that make up HCPs also impacted wholeness perceptions. My participants interacted with HCPs of all genders; however, they independently suggested that gender impacted their relationships and their comfortability with care (*Leone, Carrie, Frances, Jeanne, Irene, Donna*). Gender mattered because the women felt less vulnerable around female HCPs. My participants expressed that men did not have the requisite experience to understand and empathize the same way other women might (*Irene, Roberta*). Female HCPs and supports are more comfortable to relate to—female power/status/science is perceived by patients to be closer to that of their own (*Donna*). The imbalance of power between women is less prevalent in these relationships. The reciprocal nature of strong patient-HCP relationships means that the shared experience of being female may have bonded patients to their HCP, creating less social and power distance. The appreciation of female-caregivers may be attributed to generally accepted 'feminine' traits. Femininity traditionally includes nurturing and caring, among other traits (*Windsor, 2015*). Perhaps it was easier to believe that other women had an innate affinity to care for their patients. This might be an idea that was hard to reconcile with male HCPs. Current research shows that these traits (and many others) are indeed a continuum and can be assigned to persons of either sex (*Windsor, 2015*). Participants also found that female support from moms, doulas, friends in the delivery room and throughout care was helpful, alongside their HCPs (of both genders) and male partners.

Um, so I was quite helpless. [...] Yeah, so that feeling is—is bizarre. Especially 'cause I've never really been a patient before. Like I've never been hospitalized for any other reason. Um, so yeah, that—that feeling is a little bit overwhelming and um, it is quite emotional, but again, like I would say like, hav—I only ever had female nurses too, and so that's part of like, also helps a lot um, you don't—[...] um, don't feel as like, I don't know, as vulnerable when it's like another woman, and um, I—they I mean they do that all the time, so it's nothing they haven't seen before. So. But, again my husband was there the whole time too, which maybe was—which was very comforting so. (Jeanne)

The female-centric support is evident in where and how experiences are shared between women. My data found evidence for a "Mom Club," in which membership dues are paid through experience. Participants found trusted confidantes in other mothers—those with the shared experience. My participants indicated that conversations about pregnancy are stigmatized and inappropriate to be shared with the general public—it was 'hush-hush' or 'down and dirty business' (*Alice*). The bonds of shared experience in the "Mom Club" are strong. Social supports (see 4.2.1 Individual Factors) that women bring to the science experience have the outcome of rounding out the mental and emotional aspects of care, thus establishing wholeness with other women more easily.

2. Being Listened to. The second factor that contributes to wholeness perceptions and the overall outcomes of a science experience is being listened to. Wholeness means being

understood, heard and taken seriously. Consequently, patients felt better quality care when their patient narratives were taken into account. Listening to patient narratives is an essential component of PCC, the first (c) outcome of the science experience. The (b) science experience is communicated through conversations about decisions, defining success and policies. If patient narratives are incorporated into science experience conversations, wholeness and equal participation in care will be more easily achieved.

Patients remarked on their experiences of a respectful conversation where their needs and preferences were heard, adhered to, and aligned with HCPs (*Elsie, Frances, Jennie, Leone*). Whole-person care (closely related to PCC), which utilizes patient narratives, emphasizes the therapeutic value of the patient-HCP relationship promoting a more collaborative approach (Thomas et al., 2018). Patient's perceptions of the value of their thoughts increased, as did their satisfaction with care, when they were heard by their HCPs. *Elsie* felt her wholeness was respected when her HCP listened and agreed with her birth plan with little pushback. *Irene* and *Carrie* both felt good about their care when they were recognized as individuals:

When I did see her, she's fantastic, like I—she's the best family doctor I've ever had um, and I will—like I will stick with her as long as she's in the city [...] she definitely, she took me very seriously, she ah, like gave good balanced advice on what to do. (Irene)

So yeah. she was really good with um, I guess doing her job, but doing it well. And I know that I was not just another patient. I felt like she knew who I was. Which meant a lot to me. Cause I know a lot of times now, you go in, and they know who you are, but they don't know who you are. (Carrie)

Being listened to extends to being 'seen' by HCPs. For example, *Alice* found herself being complimented on her effort during labour. Both she and her HCP were surprised by the outcomes of effort, suggesting that HCPs do not often 'see' the individual as agents in their outcomes. By extension, science is not able to acknowledge the effort of the individual either. Science was found to have a singular vision for other science, occluding factors like effort, ability and choice.

The biological reductionist approach traditionally stands as the norm for healthcare practices. I often found that patients felt reduced to their biological needs. Reductionism contributes to the patient/participant feeling that their wholeness was not crucial to the HCP. The patient was treated as a biological need, and the HCP was treated as the 'fixer' of the biological need—a scientific conduit. *Donna* dealt with a lot of mental and emotional uncertainty, but describes bringing only her medical/biological needs to her encounters with HCPs:

And again, [C]'s a very nice person, but, because they were so busy, I never felt...ah, what's...like I would never confide in her truly about I think, like how I was feeling unless it was in terms of like medical.[...] What I mean by medical, like if I didn't feel like my baby was ok or that I was ok, I'd say something, but if I felt a little off in terms of like being rushed out of there, or waiting too long, that I wouldn't say anything about. (Donna)

Patients restrict their discussion to biology with the HCP because they do not want to waste the HCP's time by bringing up things that are irrelevant to science. They do not feel invited (a bestowing of power) to discuss things outside of science; thus, meeting science with

science. Conversely, the HCP (the embodiment of science) may only apply science to the patient (the scientific/biological problem), inevitably missing wholeness. So, if science is being matched with science, it should follow that wholeness can be matched with wholeness. Though *Harriet* experienced a collection of medical challenges, she perceived her care to be positive overall, due to some of the wholeness factors mentioned above:

Yeah, I felt like this time ‘round I had a really, really good relationship with him. And I think because he knew our past. [...] And so he—I don’t know I just felt like he had a lot of you know, like a lot of empathy towards us. And because of that, maybe he didn’t—maybe that’s just his job!—he just seemed like it. Like very caring and was—anytime I needed to have an ultrasound, the next day he would like let us know [...]. In my past is hasn’t been doctors. So um, yeah, and he was—he was just really personable [...] And like he always made sure that he was like including [Husband’s name] in the discussions and you know, like asking [Husband] kind of about how I was doing as well. [...] Yeah so I think we had a really good relationship and still like continue to do. I had some like complications afterwards and he was like also—he was in Europe and he was sending me messages from Europe because of finding things out and yeah he’s been great. (Harriet)

Wholeness means including mental and emotional supports. Participants indicated that wholeness was missing when patient-HCP relationships did not include these supports. Mental health conversations were not conducted meaningfully (*Leone, Carrie, Frances, Irene*). There was no opportunity for patients to have truthful feelings and emotions about their pregnancies (*Frances, Irene*). Wholeness is disadvantaged by the lack of human-based interaction and the abundance of science-based interaction in relationships. Donna expressed that when she was asked whether or not she wanted to have additional surgery adjacent to her scheduled c-section, she felt that science had been thrown at her, compromising her ability to be whole with her HCP:

I have to remind myself too, I don’t really know these people[...]And I was going back and forth and back and forth, and she was just like ‘yup, no that’s just your decision, you decide.’ And I kinda felt like, she kinda just threw that at me and was just being ‘hey, do you want to do this or not?’ [...] But I...it’s not—I don’t know if it’s her job to be compassionate about it either. (Donna)

3. Practicing Gratitude. Gratefulness is the last indicator of wholeness as an outcome of the science experience. My participants expressed their warm and deep appreciation of the kindness or benefits they received through their care. My participants reflected on their privilege. No particular question prompted the response, yet the majority expressed their gratitude for their access to care (medicare and ‘good medicine’), support, education, husbands, easy pregnancies (overall health) and financial ability (*Harriet, Leone, Carrie, Frances, Roberta, Jennie, Alice, Jeanne, Irene, Elsie, Donna*).

I mean I come from privilege, right? Like we have a comfortable income, like I have a family that has my back, I have people who will advocate for me right? So um, I don’t have any cognitive or like, issues or intellectual issues that impact my ability to navigate the healthcare system. I have like experience in government systems, [...]. So, I know how government systems work. So, I have some privilege in that way. So um, I think that’s helpful. (Leone)

Participants reflected that their financial ability impacted their care connecting monetary gain with quality of care. My participants noted that having doulas, private classes, or taking off work was a privilege they were afforded due to their status and financial ability. Financial compensation reinforces the distance between patients and HCPs. Similar to the science experience of policies and procedures, the saliency of the formalities of the relationship interrupts efforts to reach wholeness through science. HCPs are caring for compensation, not because patients are humans in need of care.

I've oftentimes found nurses to be more personable, or you know, like approachable than like the doctors for that type of thing. So, yeah. [...] Um, I feel like the nurses just have more time. I think, yeah. Our doctors are very pushed for time. Like they're compensated on the amount of people they can see in a day. So. It's easy to feel pressure to see more people. (Frances)

Some sociologists have connected vulnerability with living whole lives (Brown, 2015). The experience of giving birth was expressed to be exposing, extreme, and vulnerable (*all participants*). In hindsight, the vulnerability they experienced perhaps promoted empathy with other women, other marginalized, disadvantaged, or vulnerable groups of society in the same situation as whole beings. Being grateful for their experience was the ability to look back at the experience positively and acknowledge the good things they experienced. *Jeanne* felt very vulnerable during both of her birth experiences, yet she was grateful:

That's an overwhelming feeling. Um, with [baby 1] I was in so much pain that it was like all a blur and it didn't matter, um, during labour. After that [...] um, it was really good. After that uh, yeah, I honestly, I was doing so well with [baby 1] that it was totally ah, totally fine and my husband was right there the whole time too. So, um, most of my being taken care of was from him, I would say. Um, but with the girls it was definitely a little bit different. My labour was like a little bit slower and not as painful, so um, I was like definitely aware of everything that was going on. Um, and my nurses were wonderful, and they really did take a lot of good care um, of me. And then afterwards you're like, um, you know, very exposed and they're like checking on you lots. (Jeanne)

In retrospect, the women in my study were better able to see HCPs as human beings when science was no longer in situational control. They appreciated when they were allowed to express mutual vulnerability. An indicator of appreciation for wholeness in others came through the description of “S”—The Baby Guru. Some participants attended the same prenatal class with “S.” They were delighted with her care. When asked why, I found that there were many facets to “S” they appreciated: they described her as funny, informative, emotional, open, they discussed the ‘hard stuff,’ everyone was in the same boat, and they bonded with other attending couples (*Carrie, Alice, Roberta*). “S” was open to questions and available to the participants. In short, “S” was a whole being. Therefore, my participants felt like they could be whole as well.

4.4.3 Satisfaction

Satisfaction is the last outcome of the science experience. Satisfaction is the success metric for many service experiences, including healthcare, based on marketing theory. As discussed in the success metric section of the science experience, expectations play an essential role in allowing consumers to have a context for evaluation. Satisfaction is determined by patients based on: (1) expectations being realistic, and (2) expectations being met or exceeded.

1. Expectations must be realistic. Realistic expectations firstly determine satisfaction with care. Setting expectations and determining of a success metric are ways for patients to experience science. Expectations must be realistic for patients to evaluate whether or not they were satisfied with their care.

In my study, I found a collection of socially and scientifically based expectations that were not realistic. The rigidity of these expectations contributed to patients being disappointed with themselves and their care (see 4.3.2 Success Metrics) when they were not achieved. PCC is a realistic expectation that participants strived for; they expected good relationships and reliable communication. *Harriet* describes her care based on those expectations:

They made me feel really good about the whole thing. [...] so that was great. He communicated it really well. (Harriet)

I also found that there was an underlying expectation of respect, and by extension, wholeness. Patients were pleasantly surprised by experiencing science-based care that also encouraged PCC and wholeness. Wholeness can be a realistic expectation if the (a) antecedent factors of the science experience align with positive encounters with science. The outcome of satisfaction is possible if realistic expectations are set.

2. Expectations must be met or exceeded . Meeting or exceeding expectations is the last component of satisfaction as an outcome of the science experience. Descriptors for expectations that were met or exceeded included happy, pleased, good or great (*Harriet, Maude, Carrie, Frances, Roberta, Alice, Irene, Donna*), among others. *Jennie* and *Jeanne* describe what made their care satisfactory:

I mean, the care teams were—were good. I mean, there wasn't anything, that was out of...the norm, I would say. But like I said, it's really not much to do until you go into labour. You know, it's pretty standard. [...] they were all great. I got really lucky. (Jennie)

My first doctor, I would—like with [baby 1] I would say um, use very layman's terms, like most of the time. Um she was really good, and I would consider her more like a friend. She was really wonderful. (Jeanne)

For contrast *Maude* describes an unsatisfactory experience:

The first time around I didn't have a great experience um, being rushed in basically just to have him. So, didn't know [baby noise]—I still don't know to this day what doctor I had or. You know, and the everything was just kind of a blur. Um, and my nurses were kind of short. Like not as understanding, not compassionate. Like I just felt—yeah, not a good experience. (Maude)

Many of the women expected to have access to a consistent and preferred care team they expected to be listened to, and they expected to receive the care they could be grateful for (see 4.4.2 Wholeness). Patients were satisfied when these underlying expectations were met. The theoretical framework finds my participants expecting to be treated wholly. Patients had great

satisfaction with their HCPs that met their expectations. HCPs are perceived to exceed expectations when HCPs came to visit their patients after giving birth or provided them with follow-up phone calls or when they shared extra information with patients.

Meeting and exceeding expectations are difficult to determine. My participants stated that they had good or great care. Of course, there were instances where care was less than exceptional, yet wholeness and PCC often created an overall perception of satisfactory care. Additionally, the expectation and success metric of a healthy baby was met in all twelve cases. This underlying expectation may contribute to an overall perception of patient satisfaction when it is met. This suggests that wholeness and PCC may be expectations that supersede a basic level and begin to allow patients to feel their expectations were exceeded.

Chapter 5: Discussion

5.1 General Discussion

The key findings of this GT research project include the antecedents that impact the science experience, how maternity patients experience science and the patient outcomes impacted by science. The key antecedents to the science experience were individual and relationship factors, and individual agency. A patient's ability and motivation to navigate science depended on her individual pre-dispositions, individual agency, and the strength and characteristics of her relationships with her HCP. The strength of the relationship determines whether science is salient to my participants. The patient also inhabits several individual factors that influence their perceptions and experience of science. Together, the presence of antecedent factors determines how science is experienced.

The theoretical framework in decision-making and maternity care describes how my participants navigated the science they encountered in their care. The experience of science is threefold. Through the decisions, metrics and policies that patients navigate, they also navigate science because science is the language of those conversations.

The successful navigation of science determines if outcomes are positive or negative. I found that the experience of science impacted three outcomes for patients: (1) PCC, which is an established goal of healthcare decision-making, (3) satisfaction, which is an essential outcome in services marketing more generally, and (2) wholeness, an emergent outcome that is related to both satisfaction and PCC. Satisfaction with care is the ultimate goal and motivator for patients to engage and navigate science, situating this research into the service-experience literature of marketing research. In summary, this research study found a theoretical framework for how patient-HCP partners navigate science to experience PCC, wholeness and, consequently, satisfaction with care.

The variable of wholeness is not prevalent in marketing and experience-based marketing or healthcare literature. There are related concepts found in sociology and psychology, such as wholeheartedness, whole living (Brown, 2017), unbrokenness, and wholeness in reconciling conscious and unconscious states (Jungian therapy). Nevertheless, the applicability to service experience and healthcare marketing appears to be novel. In areas like religion and spirituality, there are concepts of wholeness related to being whole with mind and body, with God and creator, and with yourself and others. My research focused on women's service experience in maternity care situations and the context of science-based decision-making conversations. Wholeness emerged out of my data and was central to the experience of healthcare by my participants. In areas like healthcare, whole-person care (WPC) and PCC exist and encapsulate the idea of a complex, multi-faceted person. In the following section, I will explain how wholeness and WPC/PCC are distinct.

5.1.1 Whole-Person Care and Wholeness

This section will cover the primary literature around WPC and wholeness. Wholeness is an important finding and outcome variable of this research project. Treating people as whole

persons is not an unfamiliar idea to healthcare researchers. Recognition of the patient as an individual is fundamentally significant to human beings and their quality of life and their sense of being whole—unbroken, and inherently complex. “From the moment of birth until the instant of death, every individual cherishes and defends [their] “wholeness.” (Levine, 1969; p.1). I will discuss how WPC is different from my concept of wholeness as well as how it differs from PCC. The discussion will also expand on the concepts of personness and humanness. These two ideas are essential to the understanding of whole-person interactions for positive service experiences.

Ideally, patients would like not only to be treated as whole-persons but also to have the whole person treated medically. A person made up of physical, mental, emotional, environmental, socioeconomic, and many other facets would like her HCP to address her mental and emotional needs, acknowledge her economic and financial stressors, and be aware of her environment. These facets make up a whole person. The environment would include her career, home life, significant others, previous children, and information networks. These things included in care, according to my findings, increase perceptions of quality of care and satisfaction.

PCC and participation in care (Dubbin et al., 2013; Street, 2001) were early philosophies seeking better care for patients. Yet, researchers had already begun to see that PCC might not be enough—in fact, patients were looking for more. A *person-centred* approach might better enable HCPs to “see” the whole person in their care.

Philosophically, the notion of a person denotes what is most important about humans and what makes them unique. A standard definition of a *person* is characterized by rationality in the broad sense of the term (e.g. self- consciousness, free will, capacity to communicate) and thus deserves a special moral status that a person can claim for itself and acknowledge in others (Ikaheimo, 2017 as cited by Eklund et al., 2019). This philosophical foundation laid the groundwork for the development of PCC and WPC.

Whole-personness rests upon the assumption of the nature of human beings existing in the world. Domains such as psychology, sociology, management and communications have established human beings as consisting of physical (biological in the case of healthcare), mental, emotional, and spiritual dimensions; they are made up of diverse world cultures, belief systems and philosophies (Bell & Taylor, 2004; Dehler & Welsh, 2003; Richards, 1995 as cited by Sheep, 2006). Through the lens of science communication and marketing, my research emphasizes the importance of wholeness for effective relationships.

WPC is considered an essential element for meeting the needs of patients. Terms like WPC, holistic (wholistic) care and biopsychosocial care are used interchangeably as an approach that considers multiple dimensions of patients and their contexts for HCPs to keep sight of the whole (Thomas et al., 2018). Over the years, WPC has expanded its definition to consider the biological, psychological, social, and sometimes sociological, environmental, spiritual, cultural and economic aspect of a person for more accurate diagnoses and increased quality of treatment options, adoption and adherence (Thomas et al., 2018). This stance on healthcare contrasts with a simple biological reductionist approach.

Research by Thomas et al. (2018), in their definition of WPC, suggest that one of the most important and most overlooked aspects in pursuit of offering PCC is the relationship between the patient and the HCP. WPC emphasizes the therapeutic value of the patient-HCP relationship promoting a more collaborative approach (Thomas et al., 2018), going hand-in-hand with SDM models, PCC and evidence-based medicine. The collaborative approach was also

paramount to the outcomes for my participants. The patient's PCC experience, wholeness, and satisfaction relied on the relationship between the patient and her HCP.

Though related to PCC, WPC has slightly different connotations and goals. PCC's core goal is to provide medical care with the patient's cultural values, needs and preferences (Dubbin et al., 2013). This approach to care holds that humans are unique entities, recognizes the multidimensionality of the human experience of health and illness, offers opportunities for patients to participate in their care, and enhances the patient-provider relationship through mutual understanding for better health outcomes and communication. In brief, the goal of PCC is a functional life for the patient, where WPC has the goal of a meaningful life of a person. The WPC approaches suggest that more than biological factors contribute to disease. WPC connotes care focused on the ability of the HCP to provide accurate care and treatment to patients, including psychological and social factors. PCC, on the other hand, is focused on the perceived outcomes for patients (rather than a patient's health outcomes; Thomas et al., 2018). As will be noted in this section, WPC's goals more broadly align with the aims of my research. This alignment does not mean abandoning PCC. On the contrary, the goals of PCC should continue to be offered and pursued. In the context of the theoretical framework proposed by this research, PCC remains an integral part of a patient-HCP relationship and the success of navigating science. It is included as complementary to my concept of wholeness.

The participants in my study had instances of wholeness and relatedness with their HCPs, yet there were often factors (like science; see Chapter 4: Findings and Analysis) that stood in the way of patient satisfaction. Some researchers go so far as to suggest that in order for health systems to reform to include WPC, strategies must include improved communication between HCPs and integrate patient-HCP relationships into the system itself (Thomas et al., 2018). Thomas et al. (2018) suggest that system-wide changes need to embed an enduring, therapeutic patient-HCP relationship that must not be, but often is, overlooked in a quest to achieve efficiency and tangible outcomes.

My research emphasizes the importance of a relationship to the experience of science, which agrees with WPC paradigms. WPC researchers focused on maintaining the patient as central to healthcare in the future suggest promoting the relationship (Frist, 2005; Kenny et al., 2009). WPC leads to improved patient outcomes and fewer complaints from patients regarding medical practice (Tamblyn et al., 2007; Kenny et al., 2009). Patient-HCP communication is considered an interpersonal process and an essential part of relationship-centred care (aka WPC). Researchers postulate that patient-HCP communication is a process by which a transmitter and a receiver of messages interact in a defined social context (Kenny et al., 2009). Therefore, they deserve understanding from a relational standpoint. In medical consultations, individuals involved in patient-HCP relationships can potentially influence each other's cognitions, emotions and behaviours in a reciprocal way (Kenny et al., 2009). For this reason, my research examined the interpersonal relationship between conversation partners.

The recognition of the HCP's humanity or personness as well as adopting the view of health as more than the absence of disease are concepts that align with WPC (Thomas et al., 2018; Conrad, 2007). Reciprocity is important in true WPC. Both sides of the patient-HCP relationship are human, with faults and strengths. My research found that the recognition of unique, whole, individuals helps to encourage wholeness and set realistic expectations based on

the abilities of a human, rather than super-human. Wholeness and accurate expectations will facilitate patient satisfaction with care.

WPC has been researched in chronic-disease care (Thomas et al., 2018), pain and depressions (Kaslow et al., 2007). These situations are similar to maternity care in a couple of ways. Firstly, maternity and chronic care are extended relationships with HCPs, focused on a single health concern. Secondly, these are situations in which the illness (for lack of a better word) is not acute. These are situations where patients have to begin to live—long-term—with the impacts of the health situation. Chronic care, pain, depression, and maternity are instances where patients' lives are continued, with relative normality regardless of their health status. These are people who are not consumed by their illness and, therefore, often incorporate their healthiness into their identity. Their health situation becomes a part of who they are and how they define themselves as whole persons.

My research suggests that expecting and hoping for specific outcomes can impact the outcomes themselves. In my research, patients are asked to make decisions about their care. Particularly in the case of labour and delivery situations, control is not able to consistently reside with the patient. When identifiable goals (such as control) become unattainable, patients can adjust their goals using hopeful thinking (Milstein, 2015). Past research suggests that hopeful thinking is composed of two components: the perceived capability to produce workable routes to desired goals (pathway thinking); and, necessary motivation or human qualities including intentionality, forethought, self-reactiveness, and self-reflectiveness to initiate and sustain the use of these routes (agency thinking) (Milstein, 2015). These two components contribute to a route that transitions from hopelessness to wholeness (Milstein, 2015). In my research, identifiable (but sometimes unattainable) expectations were PCC, wholeness and satisfaction. My research aligns with Milstein's (2015) conclusions, that pathway and agency thinking are ways that a patient can adjust her expectations to reach wholeness and, ultimately, satisfaction. Furthermore, my framework indicates that antecedents to the experience of science and science-based experiences can impact the availability of wholeness.

The literature landscape on wholeness is scarce. Outside of medical care, wholeness relies on the recognition of people existing in the world as whole, unbroken and complete beings. Being whole in my study and for my participants was difficult and effortful. This is why patients have to carefully weigh the benefits and risks of the information they share with their HCPs. For a patient who likes to interact online—there is less required of her to share her information and try to communicate her wholeness (*Frances*). One sociologist explained this struggle to be whole as ironic, saying: “The irony is that we attempt to disown our difficult stories to appear more whole or more acceptable, but our wholeness—even our wholeheartedness—depends on the integration of all our experiences, including the falls” (Brown, 2017).

Wholeness is something that relates to our state as unique human beings. It promotes close, meaningful relationships between humans. This idea aligns with respect and power dynamics, which are foci of my research. Respect, based on equality, is a stepping-stone to having the space to express wholeness from both the patient and her HCP. Equality and respect are more natural to feel and reciprocate when power levels are more shared and balanced. Power balance and respect contribute to satisfaction with an HCP or care service. My research suggests that overall well-being and perceptions of satisfaction with care also relied on positive mental and emotional experiences of wholeness. Patients wanted to be seen and treated as whole-

persons for the sake of themselves. The focus on health in the holistic care paradigms will inevitably regress to the biological reductionist approach, counter to WPC's goals. My research shows that a focus on service experience can lead to wholeness regardless of health outcomes.

5.2 Other Key Takeaways

GT research demands that researchers situate findings within the literature. Several of my findings connect and align with the previous research in the field. In this section, I elaborate on such connections. Importantly, I situate my findings within the marketing literature on satisfaction. Next, I discuss the literature related to power and respect, agency and ultimately, wholeness. I finally contextualize my findings in the broader landscape of pregnancy and healthcare.

Satisfaction. I found that perceptions of being treated as whole significantly impacted satisfaction with care. Patients in my study expected wholeness—to be treated as whole—and the presence or absence of wholeness determined whether patients were satisfied with their care. The definition of “expect” as a transitive verb is to consider probable or certain; to consider reasonable, due, or necessary; to consider bound in duty or obligated; to anticipate or look forward to the coming or occurrence of; suppose, think (Lexico.com, 2020). In science, expectations are called hypotheses. These are scientists’ predictions of what is to come. The study of predictable patterns makes up expectations. These predictions are the basis of safe medical practices incorporated into evidence-based care. Expectations help HCPs provide and create standards of practice. HCPs use science to define what outcomes they expect for patients.

Strong patient-HCP relationships make it easier for patients and HCPs to form expectations, but expectations also impact patient-HCP relationships. Expectations put pressure on patients and HCP to act according to social norms and conform to ‘typical’ experiences. The mass media consumed by patients can provide unrealistic expectations for pregnancy. The image implied by most marketed messaging is of a perfect pregnancy without challenges or flaws. Perfection can be damaging to patients’ mental and physical health if those expectations are not met. From marketing literature, we know that expectations and meeting those expectations are vital for consumers to evaluate a service experience positively (Hausman, 2004). It seems that it is no different in a health service experience. Unrealistic or poorly formed expectations also make evaluations difficult (Vieder, Krafchick, Kovach, & Galluzi, 2002; Hausman, 2004).

My research aligns with this claim from service research literature: that patients are some of the most alert and attuned consumers, as they are eager for evidence of a hospital’s competence and caring (Berry et al., 2006). My participants recounted their experiences in detail, suggesting that they were highly attuned to their service and their care. Therefore, patients are highly influenced by the cues and touch points of a service provider. My research and interactions with my participants align with this claim that patients are some of the most hypersensitive consumers to service cues, as they were able to recount, in detail, their experiences. The relationship between patient and HCP is essential in creating a positive service experience.

I found that wholeness was the human interaction cue that mattered most to my participants. Consumers use various cues to determine what their expectations should be, and if they have been met or exceeded. Berry et al.’s (2006) humanic clues (see Chapter 2: Background and Theory) help HCPs exceed the expectations of patients. Human interaction in the service

experience offers the chance to cultivate emotional connectivity, which extends past respect and esteem to consumers (Berry et al., 2006). Humanic clues can exceed consumer expectations, strengthen trust, and deepen consumer loyalty (Berry et al., 2006), which remains true in my research.

Wholeness is a humanic cue that leads to satisfaction because it signals a balance of power between patient and HCP. As discussed in Chapter 2: Background and Theory, power and respect are interpersonal dynamics that are interconnected to science, communication and relationships. Respect is fundamental to the concept of wholeness in this context; wholeness extends past respect and esteem for consumers. Wholeness suggests that the more important, enduring, and personal the interaction between patients and HCPs, the more evident and effective the human interaction cues will be, further solidifying the notion that wholeness, a consumer evaluation tool, can lead to satisfaction.

Power and respect. The ideas of equality (balance of power) and respect are central to wholeness, which impacts patient satisfaction with care. Women understand these abstract concepts through the relationship dynamics they experience and communicate through science. Though not an initial aim or focus, my research moves forward the feminist standpoint theory's objectives by elevating the voices of women's reproduction, knowledge transfer, and power dynamics (Woliver, 2002; Parry, 2008) in the context of science-based conversations and decision-making in healthcare. Conversations are the transmitters of these abstract concepts and impact patients' perceptions. Patients' perceptions of power and respect are positive when science experiences have wholeness and strong relationship factors as part of the care experience.

My findings align with other research, which suggests that equality-based respect leads to feelings of humanness or personness. When individuals have heightened perceptions of being treated as human beings, they are also likely to self-humanize (Renger, Mommert, Renger, & Simon, 2016). Self-humanization is the recognition of yourself as a human comprised of human nature, flaws and uniqueness. My research suggests that self-humanization—or seeing yourself as a whole—can lead to patient satisfaction with care. Additionally, self-humanization may contribute to reciprocal wholeness (see 4.4.2 Wholeness), consequently creating a relationship based on equal power and respect. Respecting each other and acknowledging each other as 'only human' will also adjust expectations (see 4.3.2 Success Metrics). As an extension of science, patients expect HCPs to be infallible. As individual humans, HCPs cannot be infallible. Navigating science-based conversations is more easily done with a patient-HCP relationship based on humanness, which my variable of wholeness encompasses.

In the case of labour and delivery, pain and pain relief/management can be incapacitating. Therefore, my participants were not always able to advocate for their care and respect for their humanness. In this case, and for patients in various situations, respectful care is important to maintaining informed consent and bioethics (Dickert & Kass, 2009). Research has shown that patients perceive respect as incorporating several elements. These include empathy, care, autonomy, provision of information, recognition of individuality, dignity and attention to needs (Dickert & Kass, 2009). When these elements are present, patients perceive themselves to have received respectful care, and consequently have better clinical outcomes and satisfaction with their care (Dickert & Kass, 2009).

The women in my study agreed that agency was important for them to be satisfied with their outcomes. Some participants felt empowered (bestowed with agency), and this contributed to their satisfaction and perceptions of wholeness. Empowerment stemmed not only from their agency, but also their expectations of what they were able to control (or not). This aligns with self-determination theory and the notion that agency is an important individual factor for patients to be motivated to engage with science and to feel whole in healthcare. For example, many of the women acknowledged that flexibility in their birth plans was necessary. The expectation that control was not always located with the patient was crucial for expectations and wholeness.

Participants in my study were highly engaged with their care, even the scientific aspects of their care. Previous literature suggests that the public is not interested in accumulating scientific knowledge (Seethaler et al., 2019). The public science deficit has been deemed inaccurate, however, by a body of literature demonstrating that presentation of information does not necessarily change public hearts and minds toward science issues (e.g. Allum, Sturgis, Tabourazi, & Brunton-Smith, 2008; Kahan, Braman, Slovic, Gastil, & Cohen, 2009; Ho, Brossard, & Scheufele, 2008 as cited by Bes, Dudo, Yuan, & Ghannam, 2016). Additionally, as mentioned above, the public desires to be informed and engaged (Millstone & Zwanenberg, 2000). Therefore, a paradigm shift may be in order for science communicators, including in a healthcare context, where patients' expertise can be afforded more status, power, and respect. A majority of my participations did not demonstrate a deficit of science knowledge. They were all interested in learning and making informed decisions. Mainly, they also understood their science to the point of explaining it back to me as an interviewer. This demonstrated their desire and ability to engage with science as a body of knowledge.

Pregnancy Healthcare. The women in my study felt distanced from science and their HCP. My research sought to understand how patients navigate science so they can have both control and strong relationships. Increased medicalization and increased use of scientifically sophisticated knowledge can lead to alienation. Researcher Young (2001) agrees and defines alienation in this context as the objectification or appropriation of one subject of another subject's body, action or product of action. The notion that knowledge (science) equally affords control and alienation is the paradox underlying my research question.

My research contributes to the body of knowledge surrounding medicalization and de-medicalization. De-medicalization is when a condition once deemed as 'sick' or 'ill' becomes understood as normal or natural. The rise in holistic medicine has been touted as an example of both medicalization and de-medicalization (Lowenberg & Davis, 1994 as cited by Torres, 2014), where the use of medicalized personnel can ultimately lead to new understandings of certain conditions as a natural part of the human process through life. My participants wanted medical assistance and a medical impact on their birth outcomes. Yet, they also wanted elements that were more whole, which involved a less scientifically focused experience. Re-introducing the human, holistic elements to a medicalized context is the basis of wholeness in my theoretical framework. This supports the notion put forth by Torres (2014), that the system could reach a level of understanding that allowed space for safe inclusion of paradigms like WPC.

My participants have highlighted the inadequacy of evidence available regarding pregnancy and birth to reveal patient preferences. The role of knowledge transfer is also bolstered by social constructivist learning theories, which illuminate how individuals, including patients specifically, use new information to make sense of existing practices (Thomas, Menon,

Boruff, Rodriguez, & Ahmed, 2014). Knowledge translation is defined as the exchange, synthesis and ethically sound application of knowledge to improve health and provide more effective health services (Canadian Institute of Health Research, 2013). Young (2001) and Parry (2008) believe that physicians develop and control knowledge in three ways: (1) by defining pregnancy as a medical disorder, (2) by using medical instruments to understand internal processes, and (3) through employing a medical setting, which discounts a woman's control and expertise over her pregnancy. These three components of physician knowledge gatekeeping are reframed for this research as the medicalization, intervention and presence of science-based conversations. Medicalization in birth and pregnancy means that women's lived experiences are pushed to the periphery and ensures women's perspectives and insights are rarely told, heard, or given authority (Parry, 2008). My research aims to elevate the voices of Saskatchewan women experiencing pregnancy and birth.

5.3 Contributions

The contributions of this research are impactful at two levels of the healthcare industry. Immediately they apply to patients in their interactions with their HCPs and the search for better care. Identifying wholeness as a key outcome might result in women searching more purposefully for satisfactory care. This research also clarifies the applicability of marketing knowledge to healthcare interactions. Patients have an opportunity to make service decisions based on the perceived likelihood that the care will account for the whole person. More distantly, this research can impact the quality of health care service provided. My project might inform training and education at the systems level for more whole approaches to care, positive service experiences, and positive health outcomes. Patient healthiness and well-being are the primary purposes of the healthcare system. The healthcare system and HCPs exist specifically for the health and physical well-being of its patients—its consumers.

Achieving patient perceptions of wholeness will likely increase satisfaction with care. Consequently, those in my study who switched to midwives or care providers may not have otherwise made those changes. Moving to more holistic models of care brings the medical system closer to a midwifery-type model of care, and less-medicalized to better the patient experience.

Having the system and the individuals in the system identify their whole personness means that they can better account for diversity. Emphasizing individual differences means that the system will be more able to identify more considerable variability between individuals. This will ensure that individualization and personal, patient-centred care is more present in healthcare experiences.

Potential practical contributions may include creating communication frameworks and materials targeted at a patient understanding of science concepts for products, procedures, and practices related to healthy pregnancies and early child-rearing as well as numerous other health contexts. These communication materials can include mass media such as internet and social media posts, medical articles in print media, podcast science, and advertisements.

Practical implications also include improving patients' communication abilities in science-based health situations, increasing self-advocacy, autonomy, and positive health outcomes. Theories of SDM suggest that increased patient participation can positively impact patient satisfaction and health. Therefore, by fully understanding the patient experience of

science knowledge, findings can empower patients to play a more significant role in their medical care and be more confident in their equal footing in these specific relationships. Equality could be doubly beneficial in instances where a previous relationship does not exist between the HCP and the patient. Improving these skills can help the physician to work collaboratively and efficiently.

Identification of comprehension processes could lead to tools and skills for physicians, education materials for school systems, even informed medical consent. Medical consent means permission from a patient for a medical procedure, test, treatment or examination. Informed consent is when a patient learns about the intervention and its purpose as well as the risks and benefits before giving consent. The process through which patients understand medical and scientific terminology could instruct HCPs to communicate through different channels.

Educational materials for patients and HCPs can be altered to match the findings of this research.

Theoretical contributions include identifying the antecedents and outcomes of patient understanding to impact science communication, marketing, health marketing and health communication. A rich understanding of patient experiences around specific conversations, environments and situations in which scientific knowledge can be acceptable and beneficial is better understood by this research. Adjustments can be made to theories within the field of science communication to be more holistic. A multidisciplinary study such as this can significantly impact the complete understanding of wholeness as a service experience imperative.

This research contributes to the field because it describes how science and wholeness can be experienced in the same interaction. Before this study, to the best of my knowledge, very little research had been done to reconcile the two concepts. This research has shown that conversations between patients and HCP can be an experience that is designed more purposefully to engage patients at a satisfactory level. A marketing lens provides the view that healthcare can be a service experience for the benefit of the consumer/patient. Consumer well-being can be impacted by an overall positive, whole and satisfactory experience. Ultimately, patient well-being is the goal of HCPs, healthcare systems, and service providers alike.

Potentially, the theoretical framework for decision-making shows several approaches patients may take to decode and understand scientific information for health decisions. By delineating the multiple factors impacting the experience, segmentation and targeting of patients can occur to communicate complex information better. The framework can additionally impact the marketing field to create interesting debate and further research in this area.

This research, though specific to maternity care, can have implications for many health contexts. The literature on chronic and on-going care situations suggests that these are the most relevant care contexts in this research. Furthermore, it can be generalizable to other science communication situations. These findings could lead to improvements and understanding of science in the classroom, in public advertising, in food processing, space exploration, technology adaptation, and many more. It can also lead patients and consumers alike to participate in conversations regardless of the impacts of science-based lingo and rules in the field.

Finally, and likely most importantly, through the use of GT, the outcome of this project is a contribution to theory. Building theory is a major advantage of using GT methods. This research resulted in the beginnings of a new theoretical model. At the very least, this research could spark debate about existing theories and build on marketing's body of knowledge.

5.4 Limitations

This research project is limited to the specific context of maternity care and my sample of participants. The maternity care context firmly binds this theoretical framework to healthcare. Hopefully, this is a temporary limit, and future research can study decision-making in other contexts. My findings are also specific to a very homogenous sample. My findings, in all likelihood, are not generalizable to a male population. My participants were very similar in their age-ranges (as expected for the type of care), marital statuses and education levels. Therefore, this research cannot extend to include women who are unmarried, single, or widowed. It also does not account for those in different socioeconomic classes, ethnic or racial backgrounds, or women with less than post-secondary degrees. While this is a limitation, I believe it is a strength of my study because my participants differ only in their experience of pregnancy and birth. All other things being the same, I can attribute the variability of the experience a patient's relationship with her HCP, her individual factors and her interest in navigating science.

Additionally, my study is limited by successful birth experiences. As mentioned earlier, the success metric of a healthy baby is a key expectation as patients determine their satisfaction with their experience. All my participants ultimately had happy and healthy babies; this could impact satisfaction with care, regardless of service experience. More research into success metrics could identify a distinction between satisfaction with having successful births and having successful service experiences.

This research is also limited to an overall, abstracted conceptualization of experiences of women navigating science in a maternity context. Further research would likely have to be undertaken to solidify and further simplify the model for it to be empirically tested. However, this framework appears to hold the potential to be tested in the future and map onto other contexts. The extent of data saturation also limits it. My data's central themes and concepts were theoretically saturated. The numerous sub-themes are not fully explored, and due to the number of participants and time constraints, they were not able to be developed and verified across multiple participants.

5.5 Future Research

In summary, this theoretical framework of decision-making is a promising candidate for becoming a general theory. On an exploratory basis, the present theoretical framework helps explain a wide range of interpersonal and relational dynamics and participant motivations. Future research should, of course, empirically test and validate these findings. The ingredients of the theoretical framework should be explored and studied.

Further, I suggest that future research can look at the applicability of wholeness and the theoretical framework for other health and other service contexts. Testing and validating this theoretical framework are necessary to see how well it can provide insight to other situations beyond the specifics explored in this particular research endeavour. I posit that long-term care situations would likely have similar science and wholeness narratives, as would some other, more involved service situations. My research could extend to ask whether a consumer's wholeness perceptions impact how they are served, and whether or not wholeness perceptions impact satisfaction and loyalty to the provider at other service encounters. Research into liability and malpractice situations between patients and HCPs may be impacted by perceptions of wholeness, particularly as forbearance, realistic expectations, and understanding can be increased

by wholeness acknowledgements. Future research could explore how wholeness impacts the service experience of more diverse individuals in care situations.

This research also has the potential to impact other science communication situations. It would be interesting to look at the model in light of other complex information exchanges such as education. Is science knowledge experienced in the same way and impacted by the same things? Does wholeness still matter? Will communication still be impacted by the social perception of science as a discipline? For that matter, what exactly is the social perception of science currently? There are many questions that this research evokes. For that reason, I believe that my study has merit. Future research could examine the same problem for other actors in the maternity care context, including HCPs, doulas, fathers and partners. Additionally, the literature in marketing and healthcare has yet to conceive of wholeness in this way. The presentation of wholeness as vital to satisfactory service experience and positive emotional and overall well-being could become the target of many future research projects.

Chapter 6: Conclusion

Communication and respectful interactions between patients and their care providers are becoming increasingly important, as patients are empowered within the system. In maternity care specifically, power and respect in patient interactions with their HCPs is interesting to examine. My research project asked the question: *How do patients experience and navigate the scientific aspects of their conversations with HCPs?* I found that the answer was grounded in my participants' relationships with their HCPs, how patients encounter science, and the motivations patients had for engaging with science. Wholeness seemed to be the driving force for science-engagement, and a determinant for patient satisfaction with care. The novel findings of this research will take steps toward using science and medical knowledge for the benefit of women within the experience and ensure that navigating this landscape can lead to a deep sense of wholeness and equality.

In this study, wholeness is the patient's expectation that they would be treated with respect for themselves as complex and multi-faceted as whole persons. I found that patients were motivated to engage in their relationships, and with science when PPC, wholeness, and satisfaction were the outcomes. Maternity healthcare in this research is viewed as a service provided to patients; therefore, satisfaction with services is paramount to patients' outcomes and allows this research to provide unique insights to the healthcare and marketing fields. This project found that patients wanted a pleasant service experience, separate from their health outcomes. This is important for patients to know as they enter into healthcare relationships with doctors. If patients prioritize and advocate for equal and whole relationships with their HCPs, then science can be more readily engaged with, and PCC can be easier to access. In this study, marketing research was used better to understand service relationships, science communication, and decision-making. The framework of the science experience in this research project was buoyed by marketing knowledge to understand the navigation of science to the benefit of wholeness and satisfaction.

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Appendices

Appendix A- Ethics Approval Certificate



Behavioural Research Ethics Board (Beh-REB) 04/Nov/2019

Certificate of Approval

Application ID: 1490

Principal Investigator: Maureen Bourassa

Department: Department of Management and Marketing

Locations Where Research Activities are Conducted: Regina and Saskatoon, Canada

Student(s): Natalie Bolen

Funder(s):

Sponsor:

Title: Science Communication in a Maternity Health Context: A Patient Perspective

Approved On: 04/Nov/2019

Expiry Date: 03/Nov/2020

Approval Of: Appendix A: Letter of Invitation

Appendix B: Participant Recruitment Script

Appendix C: Participant Consent Form

Appendix D: Informational Poster/Notice Board Advertisement

Appendix E: Demographics Form

Appendix F: Contact Information and Interview Guide

Appendix G: Transcript Release Form

Acknowledgment Of:

Review Type: Delegated Review

CERTIFICATION

The University of Saskatchewan Behavioural Research Ethics Board (Beh-REB) is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2 2014). The University of Saskatchewan Behavioural Research Ethics Board has reviewed the above-named project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this project, and for ensuring that the authorized project is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documents.

Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

ONGOING REVIEW REQUIREMENTS

In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month prior to the current expiry date each year the project remains open, and upon project completion. Please refer to the following website for further instructions: <https://vpresearch.usask.ca/researchers/forms.php>.

Digitally Approved by Vivian Ramsden, Chair
Behavioural Research Ethics Board
University of Saskatchewan

Appendix B- Sample Email



Appendix B Participant Recruitment Script

Hello, my name is Natalie. I am a Master's student at the University of Saskatchewan. I'm studying marketing and specifically healthcare marketing. I am conducting research about science communication in maternity care, and would like to invite you to participate.

Participation in this research includes an interview exploring your experiences of conversations with health care practitioners over the course of your maternity care. I will ask you to talk about your experiences discussing science and medical terminology with health care practitioners specifically nurses, family physicians, or obstetricians. It will take approximately one hour of your time. If you agree to participate, I would be happy to meet with you wherever and whenever you have an hour to spare.

It is important that you know that you are under no obligation to participate in this study, and there will be no negative consequences if you choose not to participate.

If you are interested in participating in this research project or have any questions, comments, or concerns, please contact me preferably by tomorrow, through my e-mail: natalie.bolen@usask.ca. You can also contact my supervisor: Dr. Maureen Bourassa (bourassa@edwards.usask.ca; 306-966-2119).

Appendix C- Consent Form



Participant Consent Form

Project Title: Science Communication in a Maternity Health Context: A Patient Perspective

Researcher(s): Natalie Bolen, Master of Science in Marketing Student, Marketing and Management, Edwards School of Business, University of Saskatchewan, natalie.bolen@mail.usask.ca

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Purpose(s) and Objective(s) of the Research: You are invited to participate in a research study entitled "Science Communication in a Maternity Health Context: A Patient Perspective". Please read this form carefully, and feel free to ask any questions you might have about the study.

The primary purpose of the research is to explore the experiences of patients in the Saskatchewan health care system. Specifically, the study is interested in the experiences of recent maternity care patients who have used western medical practitioners (e.g. general practitioner, obstetrician). This study will bring a qualitative approach to understanding science communication experiences, emphasizing the narratives, understandings, and impact of science terminology on patient-provider relationships.

Procedures:

- The study will be composed an in-person interview of approximately 1 hour. The interviews will be audio recorded with your permission at a time and location that is mutually convenient. You may request that the recorder be turned off at any time.
- In the interviews, we will talk about science conversations with your health care practitioner. Some of the sub-topics explored in these interviews may include relationship dynamics, knowledge, decision-making, and your understanding of the scientific aspects of maternity care. At the end there will be demographic questions (age, gender, education, marital status, etc.). You are not obligated to answer any questions that make you uncomfortable. After the interviewing process, I will begin transcription. Once the interviews have been transcribed, you have the option to review the transcripts if you would like.
- Please feel free to ask any questions regarding the procedures and goals of the study or your role.

Funded by: The Saskatchewan Centre for Patient Oriented Research (SCPOR).

Potential Risks:

- There are no known or anticipated risks to you by participating in this research
- If any part of your participation in this study has made you feel uncomfortable, distressed, or upset, we encourage you to contact the University's Student Counseling Centre (306) 966-4920, located in the 3rd floor of Place Riel Student Centre or a counselling centre near you such as Community Adult Mental Health Services: The Postpartum Anxiety and Depression Program (306) 655-7777, CFS Saskatoon (306) 244-7773, Aspire Too (306) 382-2391.
- At the end of the study you will be given a sheet that better explains the nature of the study and you will be given a chance to ask any further questions that you might have. You will also be provided with some information from the Saskatchewan Health Authority regarding post-partum health.

Potential Benefits:

- The benefits to the participants are not guaranteed, however they may include active participation in their care, feelings of catharsis, and feelings of impacting change in the system. The goal of this research is also to impact the health system for the betterment of patients. Therefore, by participating in this study, participants will be able to advocate for the changes that will directly impact their quality of care, and satisfaction with care.

Compensation:

- There is no formal compensation for participation in this study. You will be compensated for any travel costs, should they occur.

Confidentiality:

- Your data will be kept completely confidential and no personally identifying information will be linked to your data. Data will be coded using arbitrary participant pseudonyms that will not be associated with any names or personally identifying information. Consent forms will not be linked with the data. All data will be summarized in aggregate form. Your transcript may be directly quoted in the findings of this study, but will not be associated with any names, or identifying information.

Storage of Data:

- The data and consent forms will be stored securely at the University of Saskatchewan by the supervisor a minimum of five years after the completion of the study. In instances where the data is published in an academic journal and/or presented at a professional conference, the data will be stored for a minimum of five years post-publication and/or presentation. When the data is no longer required, it will be destroyed beyond recovery.

Right to Withdraw:

- Your participation is voluntary, and you can answer only those questions that you are comfortable with. You may withdraw from the research project for any reason, at any time without explanation or penalty of any sort by contacting Natalie Bolen or Maureen Bourassa.
- Whether you choose to participate or not will have no effect on your future access to medical services or how you will be treated.
- Should you wish to withdraw, any data that you have contributed will be destroyed beyond recovery.
- Your right to withdraw data from the study will apply until data has been pooled. After this date, it is possible that some form of research dissemination will have already occurred, and it may not be possible to withdraw your data.

Follow up:

- A summary of research results will be sent to all participants at the completion of this study.

Questions or Concerns:

- Contact the researcher(s) using the information at the top of page 1;
- This research project has been approved on ethical grounds by the Behavioural Research Ethics Board on **November 4, 2019**. Any questions regarding your rights as a participant may be addressed to the Behavioural Research Ethics board through the Research Ethics Office ethics.office@usask.ca (306) 966-2975. Out of town participants may call toll free (888) 966-2975.

Consent:

I hereby consent to participate in the above research project. I understand that my participation is voluntary and that I may change my mind and refuse to participate or withdraw at any time without penalty. I may refuse to answer any questions or I may stop the interview. I understand that some of the things I say may be directly quoted in the text of the final report and subsequent publications, but my name will not be associated with that text.

Participant to provide initials: Audio recording may be taken for transcription: _____

I would like to review my transcripts: Yes _____ No: _____

Your signature below indicates that you have read and understand the description provided; I have had an opportunity to ask questions and my/our questions have been answered. I consent to participate in the research project. A copy of this Consent Form has been given to me for my records.

Name of Participant _____
Signature _____
Date

Researcher's Signature _____
Date

A copy of this consent will be left with you, and a copy will be taken by the researcher.

Appendix D- Interview Guide



Appendix F Interview Guide

Introductory Elements:

Thank participants for their time, review project objectives, purpose and procedures, invite questions or clarification, and obtain informed consent form.

Guiding Questions:

1. Please tell me a little bit about yourself.
2. I would like to talk with you about your conversations with your health care practitioners (meaning your nurses, doctors, family physicians or obstetricians) throughout your pregnancy? Specifically, I'd like to talk with you about conversations you had around science—so the science of pregnancy, childbirth, medical science, and the science of health care and your experiences around that.
Prompts as appropriate:
 - What sorts of decisions did you have to make? How did your doctor talk about that with you?
 - When did science/science concepts/medical jargon/medical terminology come up in your conversations? What kinds of science/medical concepts/terms were included?
 - What examples come to mind of conversations where science was a part of the conversation with a health-care practitioner, and where you had to make a decision as a result of that conversation? Can you think back and tell me briefly about each of the conversations that comes to mind? I will write them down and then we'll come back to some of them and we will take about some in more detail.
3. Thinking about X of the above examples, I'm interested in hearing more:
Prompts as appropriate:
 - Tell me what you remember of the conversation. What was the conversation about?
 - What role did your health-care practitioner play in the conversation? What did they say or do?
 - What role did you play in the conversation? What did you say or do?
 - What happened after the conversation? Did you speak with anyone else, or did you get information from anywhere else after these conversations?
 - What was the outcome of the conversation?
 - How would you describe your experiences in this of conversation?
 - How/what did you feel/think about this conversation? How/what did you feel/think about the science aspect of this conversation?
 - Did you feel like this conversation was respectful? Why or why not?
 - Did you feel like you were an equal (treated as an equal, an equal participant) in this conversation? Why or why not?
 - What would have made this conversation better?
4. Thinking a bit more generally now:
 - A. How would you describe your overall experiences with health-care during your pregnancy and post-partum?
 - B. What do you think should be the role of science in pregnancy and post-partum care?
 - C. On a spectrum from "sciency" to "not at all sciency", how would you describe yourself? What role does science generally play in your own life?
5. Are there any other questions that you wished you would have been asked, but weren't? If so, we have time to talk about those now.
6. Is there anything else you would like to add?

Appendix E- Early Visual Analysis and Diagramming

| | Patient | The Relationship (Middle) | HCP |
|------|---|---|---|
| Help | <p>Female Support/Docs (3,4,5,6,8,9,10,12)</p> <p>Lingo (1,3,5,7,9,10) [P6 said she didn't get much, but she did get and she understood easily]</p> <p>Safety net science (2,7)</p> <p>Teamwork mentality (3)</p> <p>Science gives Agency (3,11)</p> <ul style="list-style-type: none"> - Knowing risks/info=power (8,2) - Evidence-based knowledge (5,7,8,10) <p>Whole</p> <ul style="list-style-type: none"> - Experience (1,3,4,6,7,8,12)--this also helps give P's decision-making confidence - Privilege (gratitude, empathy [7,8,12]) - Physical strength/connectedness to physical self (2,3,8) <p>Science as a fun learning opportunity (11)</p> | <p>Expectations (8, 7, 12, 3, 5) (of self from self, spouse, society, science)</p> <ul style="list-style-type: none"> - Control - Reassurance (P1- echocardiogram) - "Normal" or typical experiences P7 <p>Prioritization of Mother/baby (5,10)</p> <p>Choices (helps patients, but total free choice w/out info or input from docs can be stressful--also sometimes things aren't presented as choices)</p> <ul style="list-style-type: none"> - Personal preference (less sci/medical) decisions caused less personal stress and agony than med decisions. <p>Consistency and Access (to each other)</p> <ul style="list-style-type: none"> - Good care = lots of appointments, monitoring, medical involvement, taken care of, things explained to her, teamwork (1, 8); continuous (2,8,6) - Often had more access to techs and nurses (P1 had best connection to tech; lots had good connection with nurses) - Continuity of care "he kind of knew..." P2 <p>Wholeness (patient, HCP, and knowledge [8])</p> <ul style="list-style-type: none"> - Questions and verbal exchange (7,8,11,12) "they know our situation" therefore assertive utterances (like Qs) aren't necessary - P11 Qs are a way to show engagement and respect--acknowledging the other's expertise - BUT you need the language to ask the questions, and have meaningful verbal exchange | <p>rules (made by science)</p> <ul style="list-style-type: none"> - Patient-mindset - Control (7)--it was good when things went bad that the docs took control. <p>Knowledge</p> <p>Whole</p> <ul style="list-style-type: none"> - Being: present, emotional, balanced, whole <p>Scientific uncertainty</p> <p>Status of Science</p> |

| | Patient | Relationship | Doctor/ HCP |
|--------|---|--|---|
| Hinder | <p>Complicated pregnancies (hinders personal control?)</p> <p>Rules (made by science)--finding loopholes (8)</p> <ul style="list-style-type: none"> - Trust in self (3,4) - Patient-mindset (8,9,10,11--patients don't have agency) <p>Reality/realness (8)</p> <p>Pain (1,2,4,5,7,8)</p> <p>Science doesn't: effort; whole; agree w/ itself (uncertainty)-5</p> <ul style="list-style-type: none"> - Personal agency is effortful (P2) <p>Status of Science</p> <p>Naive= bad (P1)--lack of science means they have to rely more on those who have it.</p> <p>Dumbing down language (P3)</p> <p>Expectations (P5, 12)</p> <ul style="list-style-type: none"> - These expectations let her down and made her think her experience wasn't what it should have been, her body failed her. - Some didn't know what to expect, therefore scary - Science is Scary (P12) | <p>Lack of Wholeness (patient, HCP, and knowledge [8])</p> <ul style="list-style-type: none"> - Doctors as purely the embodiment Science. - Outcome metrics - Meeting science w/science or respect w/respect - Lack of mental and emotional support (P5,10,12) <p>Science paradox powers and disempowers--Agency?</p> <ul style="list-style-type: none"> - The current state of knowledge/medical science (3) - Limits of medicine (3,4) - Asking for permission (despite 'knowing better') P10, 12 <p>Money (does it change the relationship that one is getting paid? [3, 5])</p> <p>Prioritization of baby/mother (1,2,3, etc.)</p> <p>Othering language ("they put me on... they did this to me/baby...")</p> <ul style="list-style-type: none"> - Choosing words carefully and approaching with deference to not offend doc's expertise (P5) <p>Good care is not brief (3 and others); they felt an imposition on their time (4, 11); rushed (almost all)</p> | <p>lack of health narratives (8)</p> <p>"Doctor lingo" (12, p.13; 2, 4,7--the rest adopted the lingo w/out much trouble)</p> <p>lack of time (read respect) [all]</p> |

